MEMO

To: File
From: Kathleen Miller
Date: 8/23/10
RE: Argo-Tech Corp. (EPA ID# OHD 004 179 453)
(* new owner: Eaton Corporation)

Summary of Phone Conversations:

On Monday, August 23, 2010, I attempted to call the contact person per RCRA Info. The phone number listed was incorrect. I did a Google search for the facility and found contact info for Argo-Tech Corporation at the location address on file. I was able to speak to someone today that informed me that Argo-Tech Corp. is no longer the company at this location and phone number. Three years ago, Eaton Corporation bought out Argo-Tech Corporation and the new environmental manager for the facility is Josh Pigman. I was transferred to his voice mail and I left a message.

On August 27th, I received a call from Mr. Pigman and he informed me that OEPA and the U.S. EPA came out in December of 2007 and conducted a site investigation. He offered to email me the letter stating that the facility is clean.

On September 22nd, I received an email from Mr. Pigman with documents regarding OEPA compliance evaluation inspection reports and return to compliance. I'm not sure that these documents address the PAVSI recommendations (15 SWMUs out of 25 units had recommendations).

I am concerned that too many SWMUs have not been addressed. **I believe that there is a need for further investigation (contact OEPA), CA070YE.**

Updated contact info for this facility:
Eaton Corporation (formerly Argo-Tech Corp.)
23555 Euclid Ave.
Cleveland, OH 44117

Josh Pigman, Environmental Manager
Tel: 216-692-6000
JoshuaPigman@Eaton.com

Inspection Reports
JoshuaPigman
to:
miller.kathleena
09/22/2010 06:19 AM
Show Details

Kathy,

Per our conversation, here are the report summary letters you requested for inspections that took place in May and December of 2007 at our facility.

Please let me know if there is anything else I can do to help.

Regards,
josh

Joshua Pigman
Eaton Industrial Corporation
Environmental Health & Safety Leader
Euclid & Inglewood Plants
t 216-692-6250
c 216-297-5094
f 216-692-5276
joshuapigman@eaton.com

23555 Euclid Ave
Cleveland, OH 44117

Stay safe, someone at home is waiting on you.

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office
1110 East Aurora Rd.
Twinsburg, Ohio 44087
TELE: (330) 963-1200 FAX: (330) 487-0769
www.epa.state.oh.us
Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

May 31, 2007

Mr. Bruce Richardson
Manager, Environmental
Argo-Tech Corporation
23555 Euclid Ave.
Cleveland, OH 44117

RE: ARGO-TECH CORPORATION, OHD157367301, LARGE QUANTITY GENERATOR, CUYAHOGA COUNTY, NOTICE OF VIOLATION/RETURN TO COMPLIANCE LETTER

Dear Mr. Richardson:

On May 17 and 22, 2007, the Ohio Environmental Protection Agency (EPA), Division of Hazardous Waste Management (DHWM), conducted a compliance evaluation inspection at Argo-Tech Corporation (ATC), located at 23555 Euclid Avenue, Cleveland, Ohio. The purpose of the inspection was to determine ATC's compliance with Ohio's hazardous waste laws as found in Chapter 3734. of the Ohio Revised Code (ORC) and Chapter 3745. of the Ohio Administrative Code (OAC). ATC was represented by you, and Ohio EPA was represented by me. This letter will explain the violations found and discuss what you need to do to correct the violations.

ATC manufactures aerospace fuel pumps for commercial and military airplanes. Hazardous waste generated by ATC includes F006 plating sludge, lab pack waste, waste aviation fuel filters, chrome and lead debris masking materials generated during plating operations, and various spent solvent cleaning agents such as methyl ethyl ketone, isopropyl alcohol, petroleum distillate cleaner, and acetone. Aviation fuel which is generated from fuel cell testing is not a hazardous waste. It is an off-specification chemical product and is transported off-site as a fuel. Other waste streams include used oil, batteries and fluorescent light bulbs.

I have enclosed copies of the inspection checklists for your records. During the inspection, I found the following violations of Ohio's hazardous waste laws:

1. **OAC 3745-273-13(D)(1); Standards for universal waste lamps, failure to store lamps in a closed container.**

   Lamps being stored next to the hazardous waste accumulation area, located in building 3, Bay -13, were being stored in boxes that were not closed, in violation of this rule.

This violation was abated on May 22, 2007, when I observed that all the boxes had been taped shut. No further action is required by ATC regarding this violation.

2. **OAC 3745-273-14(E); Standards for universal waste lamps, failure to label used lamp containers.**

A small quantity handler of universal waste must label or mark the universal waste to identify the type of universal waste as specified in this rule. The container or package in which lamps are contained must be labeled or clearly marked with one of the following phrases: "Universal Waste-Lamp(s)," or "Waste Lamp(s)," or "Used Lamp(s)."

ATC failed to label/mark containers of universal waste lamps located next to the hazardous waste accumulation area with the words required by this rule.

This violation was abated on May 22, 2007, when I observed that all the boxes had been properly labeled. No further action is required by ATC regarding this violation.

3. **OAC 3745-273-16; Standards for universal waste, failure to train employees who handle universal waste.**

Employees who handle or have the responsibility for managing universal waste must be informed of waste handling/emergency procedures relative to their responsibilities. This training would include a discussion of how universal waste lamps must be in a closed and labeled container while being accumulated on-site.

On May 21, 2007, ATC provided training to those persons who are directly responsible for handling universal waste. I reviewed the training outline and the sign in sheets to verify that the employees had attended training.

This violation was abated on May 21, 2007. No further action is required by ATC regarding this violation.

4. **OAC 3745-273-14(A); Standards for universal waste batteries, failure to properly label a used battery.**

A small quantity handler of universal waste must label or mark the universal waste to identify the type of universal waste as specified in this rule. Universal waste batteries (i.e., each battery), or a container in which the batteries are contained, must be labeled or marked clearly with any one of the following phrases: "Universal Waste-Battery(ies)," or "Waste Battery(ies)," or "Used Battery(ies)."

I noted seven (7) batteries in the hazardous waste accumulation room that had not been labeled with the words as required by this rule. You placed a label on each battery while we were in the hazardous waste accumulation room.

This violation was abated on May 17, 2007. No further action is required by ATC regarding this violation.

Ohio EPA's failure to list specific deficiencies or violations in this letter does not relieve your company from having to comply with all applicable regulations

Should you have any questions, please feel free to call me at (330) 963-1162. You can find copies of the rules and other information on the division's web page at http://www.epa.state.oh.us/dhwm. Ohio EPA also has helpful information about pollution prevention at the following web address: http://www.epa.state.oh.us/opp.

The Division of Hazardous Waste Management has created an electronic news service to provide the regulated community with news related to hazardous waste activities in Ohio. If you haven't already, we encourage you to sign up for this free service by going to http://www.epa.state.oh.us/dhwm/listserv.

Sincerely,

Marlene M. Kinney

Marlene M. Kinney
Environmental Specialist
Division of Hazardous Waste Management

MMK:ddw

Enclosures

cc Natalie Oryshkewych, DHWM, NEDO
Harry Sarvis, DHWM, CO

PROCESS DESCRIPTION/WASTE ACTIVITIES SUMMARY

Facility Name: Argo Tech Corporation **Facility Type:** LQG **EPA ID#:** OHD157367301

Description of Waste					*On-Site Management*			*Off-Site Management*	
	Process/Activity Generating Waste (e.g. plating bath, machining, baghouse, painting, etc)	**Waste Generated** (e.g. sludge, spent solvent, ash, etc)	**EPA Waste Code**	**QTY Generated per Month**	**Type of Accumulation/ Storage** (e.g. container, tank, etc)	**Type of On-Site Treatment** (recycle, wwt, etc)	**Waste Location** (Include map if possible)	**Name, state, and type of activity occurring at the facility.**	**P2 Activities**
1	Plating	waste water treatment sludge	F006	15-20 cubic yards	Roll-off container		Outdoors near wastewater treatment plant		
2	Cleaning parts	isopropyl alcohol	D001	Less than 55 gallons.	satellite accumulation	none	Throughout facility		
3	Dry film operations	waste paint and solvents	D001, D011, D035, F005	Less than 55 gallons.	satellite accumulation	none	Throughout facility		
4	Fuel pump testing	spent filters and debris contaminated with aviation fuel	D018	Less than 55 gallons.	satellite accumulation	none	At the test cells in buildings 31 and 33		
5	Plating	chrome and lead debris	D007 D008	Less than 55 gallons.	satellite accumulation	none	Plating area		

PROCESS DESCRIPTION/WASTE ACTIVITIES SUMMARY

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Description of Waste					On-Site Management			Off-Site Management	
	Process/Activity Generating Waste (e.g. plating bath, machining, baghouse, painting, etc)	**Waste Generated** (e.g. sludge, spent solvent, ash, etc)	**EPA Waste Code**	**QTY Generated per Month**	**Type of Accumulation/ Storage** (e.g. container, tank, etc)	**Type of On-Site Treatment** (recycle, wwt, etc)	**Waste Location** (Include map if possible)	**Name, state, and type of activity occurring at the facility.**	**P2 Activities**
1	Various	Obsolete lab waste	D001 D002 D003 D007 D010	Less than 55 gallons.	container	none	Hazardous waste accumulation room.		
2	Cleaning finished parts	petroleum distillate cleaner	D001	Less than 55 gallons.	container	none	satellite		
3	Cleaning	spent acetone	D001, F003	Less than 55 gallons.	container	none	satellite		
4	Machines	used oil	none	varies	3000 gallon tank.	none	basement		
5	Facility	fluorescent lamps, batteries	none	varies	boxes, pallets	none	Next to hazardous waste accumulation room or inside of it.		

REMARKS–GENERAL INFORMATION

General Process Information:

Hazardous waste is shipped off-site, or was shipped off-site, to the following facilities: Envirite, Chemical Solvents, Chemtron, Clean Harbors, and teris LLC (formerly ENSCO).

Rader Environmental oversees all shipments of hazardous waste/universal waste/used oil off-site.

Regulatory/Enforcement History (if applicable)**:**

Other:

OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office

2110 East Aurora Rd.
Twinsburg, Ohio 44087

TELE: (330) 963-1200 FAX: (330) 487-0769
www.epa.state.oh.us

Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

December 26, 2007

RE: EATON AEROSPACE
OHD157367301
CUYAHOGA

Mr. Joshua Pigman
Eaton Aerospace, Fuel Systems Division
Environmental Health & Safety Leader
23555 Euclid Ave.
Cleveland, OH 44117

Dear Mr. Pigman:

On December 12, 2007, the Ohio EPA, Division of Hazardous Waste Management (DHWM), conducted a site visit at Eaton Aerospace (Eaton), located at 23555 Euclid Ave., Cleveland, Ohio. The purpose of the site visit was to gather information about Eaton's waste water treatment unit and how Eaton manages its used oil. The Ohio EPA was represented by Wade Balser and me. Eaton was represented by you, Mark Fross and Kasey Petraitis.

Our site visit was in response to a November 30, 2007, compliance evaluation inspection conducted by USEPA and Ohio EPA at Turbine Engine Components Technologies Corporation (TECT), also located at 23555 Euclid Ave., Cleveland, Ohio. During the TECT inspection, potential issues were identified regarding the manner in which TECT manages its plating wastewater and its used oil. Specifically, TECT stated that its plating wastewater and used oil were managed for them by Eaton.

Eaton and TECT are two separate facilities located in the same building. Both facilities perform electroplating operations. Eaton operates a wastewater treatment unit located in Building 4 of Eaton's facility. The discharge from the wastewater treatment unit is regulated by a NPDES permit. Eaton's plating lines are hard piped directly to the wastewater treatment unit. TECT's acid stock removal line from its plating operations is also hard piped directly to the wastewater treatment unit operated by Eaton. Per the July 2004 Ohio EPA guidance document, "The Wastewater Treatment Unit Exemption under Ohio Hazardous Waste Rules":

> The term "wastewater," in the context of the WWTU exemption, is not defined in Ohio's rules or statue. Wastewater discharges from an exempt unit are regulated under the CWA. Any waste that is authorized to be treated in a WWTU under a CWA wastewater permit can be managed in the exempt unit.

Eaton is managing a wastewater treatment unit under an NPDES permit of the Clean Water Act; therefore, Eaton does not appear to be in violation of any of the hazardous waste rules by managing TECT's wastewater in its wastewater treatment unit. I have enclosed a copy of the guidance for your records.

Also from the July 2004 guidance document, in order to comply with the waste evaluation and land disposal restriction requirements, the generator (TECT) must evaluate its wastewater prior to it being treated in the wastewater treatment unit. If the waste is listed, any treatment sludges generated from the wastewater treatment unit would be listed hazardous waste. Eaton is properly managing the wastewater treatment unit sludge as a F006 hazardous waste. Eaton will want to keep a copy of TECT's waste evaluation for its records. **Please send me a copy of the waste evaluation data for the plating wastewaters generated by TECT and being managed in Eaton's wastewater treatment unit.**

Eaton manages its used oil in the Oil Basement. There is a 3000 gallon tank located in the basement that is used to collect used oil. Used oil is conveyed to this tank by dumping used oil into a trough covered by a grate located on the first floor. The used oil is gravity fed through a pipe to the tank. TECT also pours its used oil into the trough and it is collected in Eaton's used oil tank. Used oil is shipped off site to GEM. **Please submit to my attention a copy of the most recent waste analysis data for the used oil that TECT pours into Eaton's used oil tank and for the used oil that Eaton ships to GEM.**

During the site visit, we were told that Eaton may stop managing TECT's waste water and used oil, and that Eaton may stop using the 3000 gallon used oil tank to store its own used oil. Should any of these changes occur, please notify me in writing of the changes and the new procedures that will be put into place.

Eaton has not yet submitted an updated RCRA Subtitle C Site Identification Form (Site ID Form) to the Ohio EPA to reflect the change in ownership from ArgoTech Corporation to Eaton. Additionally, the Site ID form can be updated to reflect that you are the new site contact person for the facility. You can find the site ID form on the Ohio EPA's web site at: http://www.epa.state.oh.us/dhwm/annualreport/SiteIDformMay2007.pdf. The facility contingency plan also must be updated if there has been a change in the facility primary emergency coordinator.

Please submit the requested documentation within 30 days of your receipt of this letter. Ohio EPA's failure to list specific deficiencies or violations in this letter does not relieve your company from having to comply with all applicable regulations.

You can find copies of the rules and other information on the hazardous waste division's web page at http://www.epa.state.oh.us/dhwm. Ohio EPA also has helpful information about pollution prevention at the following web address: http://www.epa.state.oh.us/opp.

The Division of Hazardous Waste Management has created an electronic news service to provide the regulated community with news related to hazardous waste activities in Ohio. If you haven't already, we encourage you to sign up for this free service by going to http://www.epa.state.oh.us/dhwm/listserv.

Should you have any questions or concerns, please do not hesitate to call me at (330) 963-1162.

Sincerely,

for Marlene M. Kinney
Environmental Specialist
Division of Hazardous Waste Management

MMK:ddw

Enclosure

cc: Natalie Oryshkewych, DHWM, NEDO
Derrick Samaranski, USEPA, Region V

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5

MEMORANDUM

DATE:
SUBJECT: Determination of Need for an Investigation
Facility Name: Argo-Tech Corp. (new owner: Eaton Corporation)
EPA ID #: OHD 004 179 453

FROM: Kathleen Miller
Kathleen Miller, Environmental Protection Specialist

TO: George Hamper, Chief, Corrective Action Section 2

I recommend the following determination regarding the need for an investigation:

☐ **CA070NO** Determination of Need for an Investigation-Investigation is not Necessary

Reason for Determination

- ☐ Preliminary Assessment/Visual Site Inspection (PA/VSI) did not recommend any further investigation
- ☐ PA/VSI recommendations do not warrant RRB attention
- ☐ Phase 1 Environmental Site Assessment (ESA) did not recommend further investigation
- ☐ Phase 2 ESA did not recommend further investigation
- ☐ Phase 1/Phase 2 ESA recommendations do not warrant RRB attention
- ☐ Company representative asserts that the site is clean
- ☐ Not subject to corrective action
- ☐ Enrolled in other clean-up program
- ☐ PA/VSI recommendations have been implemented
- ☐ Superfund Removal
- ☐ Participating in Voluntary Remediation Program
- ☐ Completed Voluntary Remediation Program
- ☐ Superfund Remedial Action
- ☐ Superfund No Further Action Decision
- ☐ Superfund Base Relocation and Closure
- ☐ Other_____

☒ **CA070YE** Determination of Need for an Investigation – Investigation is Necessary

Reason for Determination

- ☐ PA/VSI recommends further investigation
- ☐ ESA recommends further investigation
- ☐ Other_____

RCRA closure in 1993 but PA/VSI report was prepared in 1992 - there are 25 solvents + at least 15 units have recommendations

☐ **No determination can be made** – More Information Needed

☐ Approved ☐ Not Approved

Signed: _____ Date: _____

Determination: CMS, sampling

PA/VSI Or RFA FILE REVIEW CHECKLIST

Facility Name: Former TRW Tapco Facility (Argo-Tech Corporation)

EPA ID: OHD 004 179 453__ Address: 23555 Euclid Ave. Cleveland, Cuyahoga Co., OH

Name of Reviewer: Maureen McHugh_____ Date of Review: 8/28/08_____

1	Yes	No	Is this a one folder site?
2	Yes	No	Are there Superfund files for this site?
3	Yes	No	Did you Read the Executive Summary?
			There are: __25__ SWMUs and ___8__ AOCs at this site.
4	Yes	No	Did you review the regulatory history?
5	Yes	No	Does the facility have interim status or a permit? (withdrawn)
			This facility is a: __X__ SQG, _____ LQG, or ____ Less than 90 day.
6	Yes	No	Was the Facility closed per RCRA? RCRAInfo 380 & 389 (1990)
			If Yes, was the closure: ____ CC, or _____ CIP.
7	Yes	No	Are there documented (historical) releases? Briefly describe on Page 2.
8	Yes	No	Were there releases identified during the inspection? Briefly describe on Page 2.
9	Yes	No	Do you agree with the Conclusions and Recommendations?
			If No, briefly describe on Page 2.

As a result of your review of the PA/VSI or RFA file, please classify this site as:

_____ No further corrective action recommended or warranted: These are sites that closed the regulated units and any other SWMUs or AOCs at the site did not warrant any further corrective action (no historic releases or evidence of releases observed during the Visual Site Inspection).

___X__Further Action Required: Soil or sediment sampling or groundwater sampling or monitoring or any type of investigation that was recommended in the report in response to a documented or observed release at any SWMU or AOC and where such investigation, whether being addressed during the inspection or after, does not have the necessary documentation in the facility record files.

_____ More Information Needed: There is no RFA, PA/VSI or RCRA closure information available.

PA/VSI Or RFA FILE REVIEW CHECKLIST

Notes

Briefly describe any documented (historical) releases for any SWMU or AOC recorded in the report. For each release, please identify the SWMU or AOC and a one or two line description of release.

-A wetland area and soil associated with the torpedo test building had been contaminated with Otto fuel containing propylene glycol dinitrate and cyanide which was released from an underground steel separator tank. The tank and contaminated soil was removed. The adjacent runoff stream was dredged and soil was excavated. The area was approved closed by OEPA in 1990.

-In 1987 a report was made regarding the discovery of soil contaminated with JP-4 aviation fuel at the JP-4 tank farm (SWMU17).

-Samples taken in 1987 indicated that the soil and groundwater at the former UST areas (SWMU18-21) were contaminated with chlorinated solvents, cyanide, metals, petroleum products, and PCBs.

-Samples submitted in 1988 indicated that soil at the former UST area south of Bldg. 31 was characterized as containing organic compound residuals. Groundwater samples contained organic solvents and PCB-1248 (26,000ug/L). The soil at the former UST area south of Bldg. 15 was characterized by SVOCs (50-180mg/kg) and benzene near detection levels. Ethylbenzene, xylenes, and aliphatic hydrocarbons were detected in soil associated with both existing and former UST areas outside Bldg. 33. Vinyl chloride (5ug/L) was detected in groundwater samples. The soils and groundwater around the chip dock area north of Bldg. 4 contained chlorinated hydrocarbons in concentrations ranging from 4-180mg/kg for soils and 3500-140,000ug/L for groundwater. Pentachlorophenol (57ug/L) and PCB-1260 (49ug/L) were detected in groundwater samples. PCA, TCE, and 1,1,1-TCE in concentrations from 1-180mg/kg in soil and from 2-40,000ug/L in groundwater were detected in several locations. Chloroform and 1,1,1-TCE were the predominant VOCs detected in the storm and sanitary sewer water. Trace metals were detected in soils and groundwater samples where petroleum residuals were present.

-AOC1 (Railroad Spur/Lobby 3)- A remedial investigation report submitted in 1990 indicated the presence of VOCs (up to 5000ppb), lead (up to 114ppb), arsenic (up to 90ppb), mercury (up to .5ppb), chromium (230ppb) in the groundwater. Soil samples indicated concentrations of TCE (1.27mg/kg), TCA (.008mg/kg), DCE (.23mg/kg), PCE (.75mg/kg), benzene (.11mg/kg), ethylbenzene (.22mg/kg), arsenic (120mg/kg), chromium (1800mg/kg), lead (35,000mg/kg), and mercury (2mg/kg). Soil gas sampling detected the presence of TCA, TCE, PCE, vinyl chloride, and benzene.

-AOC2 (Post 1)- The 1990 RI indicated that 1,1,1-TCA and 2-hexanone were detected in groundwater monitoring wells.

-AOC3 (Bldg. 7 Tank Farm)- The 1990 RI indicated that VOCs were detected in the groundwater and soil. Arsenic and mercury were detected at levels above the site average. Cyanide was also detected in 2 soil borings.

-AOC4 (Forge Shop Addition)- The 1990 RI indicated that VOCs, arsenic, cadmium, chromium, cyanide, and lead were detected in the soil above the site average.

-AOC5 (Cowel Fill Area)- Arsenic, chromium, lead, and mercury detected at levels above the site average

-AOC6 (Cowel Complex)- PCBs, xylene, arsenic, lead, and chromium detected at levels above site average

-AOC7 (Compressor Blowdown Area) & AOC8 (Former UTS Farm 5)- VOCs in soil borings

Briefly describe any releases observed during the inspection for any SWMU or AOC recorded in the report. For each release, please identify the SWMU or AOC and a one or two line description of release.

PA/VSI Recommendations

-Conduct a corrective measure study that includes the Argo-Tech temporary HWDSA, former concrete clock filter area, chip dock area, Argo-Tech WWTP, plating sumps, Argo-Tech electroplating filter cake dumpster, Textron filter cake dumpster, JP-4 UST farm, former UST farm 1, former UST 2, former UST farm 3, former UST farm 4, forge shop addition, colwel fill area, and the cowel complex (SWMU6,8,9,11,12,14,16,17,18,19,20,21, AOC4,5,6).

-Sampling of soil and groundwater at the TCE aboveground storage tank, scupper area, bay k-7 sump, building 24 and associated drain lines, railroad/lobby 3, post 1, building 7 tank farm, compressor blowdown area, and former UST fa (SWMU10,22,24, AOC1,2,3,7,8).

HRE-8J

JUN 1 1 1992

Mr. Bruce Richardson
Argo-Tech Corporation
2355 Euclid Avenue
Cleveland, Ohio 44117

Re: Argo-Tech Corp. (TRW)
OHD 004 179 453

Dear Mr. Richardson:

Enclosed please find a copy of the Preliminary Assessment/Visual Site Inspection for the referenced facility.

The executive summary and conclusions and recommendations section have been withheld as enforcement confidential.

If you have any questions, please contact me at (312) 886-4448.

Sincerely yours,

Kevin M. Pierard, Chief
Minnesota/Ohio Technical Enforcement Section
RCRA Enforcement Branch

Enclosure

HRE-8J:FHARRIS:6/10/92:6-2884:MASTER

OFFICIAL FILE COPY

CONCURRENCE REQUESTED FROM REB			
OTHER STAFF	REB STAFF	REB SECTION CHIEF	REB BRANCH CHIEF
	6/10/92	6/11/92	

HRE-8J

APR 10 1992

Mr. Jamie Schiff
Textron, Inc.
40 Westminster Street
Providence, Rhode Island 02903

Re: Argo-Tech Corporation
Formerly TRW, Inc.
OHD 004 179 453

Dear Mr. Schiff:

Per your request of April 6, 1992, enclosed please find a copy of the Preliminary Assessment/Visual Site Inspection for the referenced facility.

The executive summary and conclusions and recommendations section have been withheld as enforcement confidential.

If you have any questions, please contact me at (312) 886-4448.

Sincerely yours,

Kevin M. Pierard, Chief
Minnesota/Ohio Technical Enforcement Section
RCRA Enforcement Branch

Enclosure

HRE-8J:FHARRIS:6-2884:4/7/92:MASTER.RES

| OFFICIAL FILE COPY |

CONCURRENCE REQUESTED FROM REB			
OTHER STAFF	REB STAFF	REB SECTION CHIEF	REB BRANCH CHIEF
	FH 4/7/92	KO 4/10/92	

HRE-8J

JUN 1 1 1992

Mr. Richard Volpi
Engineering Science
19101 Villaview Road
Suite 301
Cleveland, Ohio 44119

Re: Argo-Tech Corp. (TRW)
OHD 004 179 453

Dear Mr. Volpi:

Per your request of June 10, 1992, enclosed please find a copy of the Preliminary Assessment/Visual Site Inspection for the referenced facility.

The executive summary and conclusions and recommendations section have been withheld as enforcement confidential.

If you have any questions, please contact me at (312) 886-4448.

Sincerely yours,

Kevin M. Pierard, Chief
Minnesota/Ohio Technical Enforcement Section
RCRA Enforcement Branch

Enclosure

HRE-8J:FHARRIS:6/10/92:6-2884:MASTER

OFFICIAL FILE COPY

CONCURRENCE REQUESTED FROM REB			
OTHER STAFF	REB STAFF	REB SECTION CHIEF	REB BRANCH CHIEF
	6/10/92	6/11/92	

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
230 SOUTH DEARBORN ST.
CHICAGO, ILLINOIS 60604

REPLY TO ATTENTION OF:
5HR-12

August 1, 1991

Bruce Richardson, Environmental Manager
Argotech
23555 Euclid Avenue
Cleveland, Ohio 44117

Re: Visual Site Inspection
Argotech Facility,
OHD004179453

Dear Mr. Richardson:

The United States Environmental Protection Agency (U.S. EPA) Region V will conduct a Preliminary Assessment and Visual Site Inspection (PA/VSI) at the referenced facility. This inspection is conducted pursuant to the Resource Conservation and Recovery Act, as amended (RCRA) and the Comprehensive Environmental Response, Compensation, and Liability Act, as amended (CERCLA). The PA/VSI requires identification and systematic review of all solid waste streams at the facility. The objective of the PA/VSI is to determine whether or not releases of hazardous wastes or hazardous constituents have occurred or are occurring at the facility which may require further investigation. This analysis will also provide information to establish priorities for addressing any confirmed releases.

The visual site inspection of your facility is to verify the location of all solid waste management units (SWMUs) and areas of concern to make a cursory determination of their condition by visual observation. The VSI supplements and updates data gathered during a preliminary file review. During this site inspection, no samples will be taken. A sampling visit to ascertain if releases of hazardous waste or constituents have occurred may be required at a later date.

Assistance of some of your personnel may be required in reviewing solid waste flow(s) or previous disposal practices. The site inspection is to provide a technical understanding of the present and past waste flows and handling, treatment, storage, and disposal practices. Photographs of the facility are necessary to document the condition of the units at the facility and the waste management practices used.

The VSI has been scheduled for Tuesday, August 27, 1991. The inspection team will consist of two employees of PRC Environmental Management, Inc., contractors for the U.S. EPA. Representatives of the Ohio Environmental Protection Agency may also be present. Your cooperation in admitting and assisting them while on site is appreciated.

The U.S. EPA recommends that personnel who are familiar with present and past manufacturing and waste management activities be available during the VSI. Access to any relevant maps, diagrams, hydrogeologic reports, environmental assessment reports, sampling data sheets, environmental permits (air, NPDES), manifests or correspondence is also necessary, as such information is needed to complete the PA/VSI.

If you have any questions, please contact me at (312) 886-4448 or Sheri Bianchin at (312) 886-4446. A copy of the Preliminary Assessment/Visual Site Inspection Report, excluding the conclusions portion may be made available upon request.

Sincerely yours,

Kenneth S. Bardo

For Kevin M. Pierard, Chief
OH/MN Technical Enforcement Section

cc: Dave Wertz, Ohio EPA - Northeast District
Janine Secord, Ohio EPA - Columbus

PRC Environmental Management, Inc.
233 North Michigan Avenue
Suite 1621
Chicago, IL 60601
312-856-8700
Fax 312-938-0118

PRELIMINARY ASSESSMENT/ VISUAL SITE INSPECTION

ARGO-TECH CORPORATION FORMERLY TRW, INC. 23555 EUCLIDE AVENUE CLEVELAND, OHIO 44117 OHD 004 179 453

FINAL REPORT

Prepared for

U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Waste Programs Enforcement
Washington, DC 20460

Work Assignment No.	:	C05087
EPA Region	:	5
Site No.	:	OHD 004 179 453
Date Prepared	:	February 4, 1992
Contract No.	:	68-W9-0006
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EXECUTIVE SUMMARY

PRC Environmental Management, Inc. (PRC) performed a preliminary assessment and visual site inspection (PA/VSI) to identify and assess the existence and likelihood of releases from solid waste management units (SWMU) and other areas of concern (AOC) at the Argo-Tech Corporation (formerly TRW, Inc.) facility in Cleveland, Ohio. This report summarizes the results of the PA/VSI and evaluates the potential for releases of hazardous wastes or hazardous constituents from the SWMUs and AOCs identified. In addition, a completed U.S. Environmental Protection Agency (EPA) Preliminary Assessment Form (EPA Form 2070-12) is included in Attachment A to assist in setting priorities among Resource Conservation and Recovery Act (RCRA) facilities.

The Argo-Tech Corporation (the facility or Agro-Tech) is located on a 200-acre site in Cleveland, Ohio in Cuyahoga County (latitude 41°34'40" N, longitude 81°31'18" W). The facility is located in a light industrial and residential area of Cleveland. Euclid Creek is 3/4 miles southwest of the facility. Lake Erie is approximately 2 miles to the northwest. The facility is not located in a 100-year flood plain.

The facility was built in 1941 by Thompson Aircraft Products Company (TAPCO, later TRW, Inc.). The facility manufactured precision parts for aircraft, naval vessels, and other military and industrial uses. Manufacturing processes included a variety of stamping and plating procedures. Argo-Tech acquired the facility on October 20, 1986. In addition, Airfoil Forging Textron Corporation (Textron) and Precision Casting Corporation (PCC) each purchased a portion of TRW's operations on August 29, 1986. Argo-Tech also leases portions of the facility to International Gear Corporation (IGC), Maine Mechanical Corporation (MMC), and Propulsion Technologies, Inc. (PTI). Present manufacturing operations at the facility are similar to previous TRW operations.

Argo-Tech produces aircraft fuel pumps. Machining, metal finishing, assembly and testing are part of Argo-Tech's operations. The machining operation generates metal chips and turnings that are stored at the chip dock area before they are shipped off site. Other wastes generated from machining operations include nonhazardous waste oils, coolants, solvents, paint waste, abrasive cleaner waste, and wastewater.

Textron produces compressor blades. Wastes generated by Textron include metal trimmings, lead coatings, waste graphite, waste oils, Kolene (molten sodium hydroxide [NaOH]), and acid wastewaters.

IGC operates several different metal finishing lines. These lines consist of metal plating, stripping, and etching. PCC manufactures casts for helicopter transmissions. Manufacturing and waste-generating processes are similiar to IGC's operations. MCC manufactures casts for nuclear drive transmissions. MMC's manufacturing and waste-generating processes are also similar to IGC's operations. Both PCC and MMC are Department of Defense operations; therefore, information about their manufacturing operations is classified.

PTI manufactures and tests torpedoes and missiles. Wastes generated in this operation are waste Otto fuel (polypropylene glycol dinitrate [PGDN], 22.5 percent di n-butyl sebacate, and 1.5 percent 2-nitro diphenyl amine, cyanide waste, hydrogen cyanide gas, and ammonia gas).

After the saale of the facility to Agro-Tech, TRW maintained responsibility for RCRA closure of SWMUs. On November 30, 1987, TRW submitted to the Ohio Environmental Protection Agency (OEPA) notification of withdrawal from the Part A permit program and a closure plan for dock 2-B (SWMU 3); building 45, the former hazardous waste drum storage area (SWMU 2); and the underground storage tank associated with building 49 (SWMU 1). In October 1985, TRW reported releases of waste Otto fuel associated with the underground storage tank (SWMU 1) in building 49. This unit was included in the facility's closure plan and RCRA-closed in 1989. Waste aviation fuel releases involving the JP-4 underground storage tank farm (SWMU 17) and the former underground storage tank farms (SWMUs 18, 19, 20, and 21) were reported in July and November 1987. OEPA determined that the underground storage tanks involved in the July and November 1987 incidents were subject to RCRA corrective action provisions rather than to closure requirements.

TRW began closure of these units in August 1989, after EPA approval of its closure plan was received. In July 1990, TRW submitted certification that closure was complete and requested the withdrawal of its RCRA Part A hazardous waste permit application. OEPA approved TRW's closure and withdrew the Part A permit application in September 1990. OEPA identified the facility as a large-quantity hazardous waste generator, because the facility remained liable for wastes that were generated during post-closure remedial activities. Argo-Tech retained the same EPA identification number that the former TRW facility had. Textron obtained a seperate EPA

identification number (OHD 981 534 399). The other companies leasing property and operating at the Argo-Tech facility rretained the same EPA identification numbers that the former TRW facility had.

The PA/VSI identified the following 25 SWMUs and 8 AOCs at the facility:

Solid Waste Management Units

1. Former Building 49, Underground Storage Tank
2. Building 45, Former Hazardous Waste Drum Storage Area
3. Dock 2-B, Former TRW Hazardous Waste Drum Storage Area
4. Satellite Hazardous Waste Drum Accumulation Areas
5. Airfoil Forging Textron Hazardous Waste Drum Storage Area
6. Argo-Tech Temporary Hazardous Waste Drum Storage Area
7. Cyanide Afterburner
8. Former Concrete Block Filter Area
9. Chip Dock Area
10. Trichloroethylene Aboveground Storage Tank
11. Argo-Tech Wastewater Treatment Plant
12. Plating Sumps
13. Bulk Waste Otto Fuel Storage
14. Argo-Tech Electroplating Filter Cake Dumpster
15. Textron Kolene Wastewater Treatment System
16. Textron Filter Cake Dumpster
17. JP-4 Underground Storage Tank Farm
18. Former Underground Storage Tank Farm 1
19. Former Underground Storage Tank Farm 2
20. Former Underground Storage Tank Farm 3
21. Former Underground Storage Tank Farm 4
22. Scupper Area
23. Waste Otto Fuel Drum Storage Area
24. Bay k-7 Sump
25. Building 24 and Associated Drain Lines

Areas of Concern

1. Railroad Spur/Lobby 3
2. Post 1
3. Building 7 Tank Farm
4. Forge Shop Addition
5. Colwel Fill Area
6. Colwel Complex
7. Compressor Blowdown Area
8. Former Underground Storage Tank Farm 5

In July 1987, SITEX Corporation installed 13 ground-water monitoring wells to investigate ground-water contamination associated with the underground storage tank areas, the chip dock area (SWMU 9), and other isolated locations at the facility. In 1989, TRW contracted with Engineering-Science to conduct a remedial investigation of the entire facility.

Releases of volatile organic compounds (VOC) and metals to ground water were detected in monitoring wells located at or near several SWMUs and AOCs at the facility. Chlorinated VOCs in concentrations ranging from 0 to 18 ppm were reported in monitoring wells located at or near SWMUs 8, 9, 10, 11, 12, 14, 16, and 25 and AOCs 1, 2, and 3. Aromatic VOCs in concentrations ranging from 0 to 2 ppm were reported in wells located near SWMUs 17, 18, 19, 20, and 21 and AOC 3. A separate-phase, floating hydrocarbon layer ranging from a film to several inches thick has been detected in wells located near SWMUs 17, 18, 19, 20, and 21. Arsenic, cadmium, chromium, lead, and mercury levels at above the site average were detected in wells located at or near SWMUs 6, 8, 9, 10, 11, 12, 14, 16, 17, 18, 19, 20, 21, and 25 and AOC 1.

On October 31, 1985, TRW reported to OEPA a release to surface water. A wetland area associated with the torpedo test building (building 49, SWMU 1) had been contaminated with PGDN and cyanide. The source of the contamination was reported to have been wastewater which had been discharged from torpedo testing operations. Before 1985, a 1,000-gallon underground steel separator tank was used to collect liquid residues of torpedo fuel. Intermittent discharges of 200 to 300 gallons each from the tank had contaminated the soil and a wetland area approximately 100 feet southeast of the building. Between September and October, 1989, TRW removed the 1,000-gallon separator tank, the discharge pipe, and the holding tanks. A polygon area of contaminated soil was excavated. The adjacent runoff stream was dredged, and soil was excavated to a depth of 2.5 feet. In November 1989, the excavated area associated with the holding tank was backfilled. The area was certified RCRA closed by Engineering-Science in July 1990. OEPA approved the closure on August 17, 1990. The wetland was filled in and replaced by a paved road. The potential is low for future releases to surface water from any of the SWMUs and AOCs at the facility. The nearest surface water, Euclid Creek, is 3/4 mile southwest of the facility.

No releases to air were observed during the PA/VSI. The potential for release to air is low. All volatile wastes are stored in sealed drums or tanks.

The underground storage tank near building 49 (SWMU 1) that was the source of the surface-water contamination also contaminated the soil in the area surrounding the tank, as well as in the wetland and in the streambed. This area was remediated as described above.

Engineering-Science identified several areas of soil contamination at the facility. The areas ranged in size from 1,000 square feet to over 100,000 square feet. Soils contaminated with chlorinated VOCs were found near the Argo-Tech temporary hazardous waste drum storage area (SWMU 6), the former concrete block filter area (SWMU 8), the chip dock area (SWMU 9), the Argo-Tech wastewater treatment plant (SWMU 11), the plating sumps (SWMU 12), the Argo-Tech electroplating filter cake dumpster (SWMU 14), the Textron filter cake dumpster (SWMU 16), the scupper area (SWMU 22), building 24 and its associated drain lines (SWMU 25), the railroad spur/lobby 3 (AOC 1), the building 7 tank farm (AOC 3), the forge shop addition (AOC 4), and the compressor blowdown area (AOC 7). Aromatic VOCs were detected in soils near SWMUs 17 through 21 and AOCs 1 and 3. PCBs were found in soils near SWMUs 9, 17, 19, and 20, and 24, and AOC 6. Metals (arsenic, cadmium, chromium, lead, and mercury) were detected at levels above the site average in soils near SWMUs 8, 9, 11, 12, 14, 17, 18, 19, 20, and 25, and AOCs 1 and 3. Cyanide was found in soils near SWMUs 6, 11, 12, 14, and 16 and AOCs 3, 4, and 5.

Access to the site is restricted. The facility is bounded on the north by railroad tracks, on the west by 222nd Street, and on the south by Euclid Avenue. Fences surround the entire facility, and on the east, its boundary is the fence itself. All bulk chemical storage is inside the fenced area. The facility is protected by security guards 24 hours a day; round-the-clock TV-camera surveillance also is maintained. The facility is located in Cleveland, Ohio (population: 513,822) in an area of mixed residential and industrial use. Some 500 to 1,000 people live within 1/2-mile of the facility. Various schools and parks are located within a 1/2 mile radius of the facility. The nearest surface water is Euclid Creek, which flows northwest into Lake Erie and is located 3/4 mile southwest of the facility. Uses of Euclid Creek are unknown. Ground water in the area is not used as a drinking-water source. There is one well of unknown use located approximately 1 mile upslope and upgradient from the facility.

The potential for any release of hazardous wastes or hazardous constituents from this facility is high. PRC recommends the following actions for the SWMUs and AOCs listed below.

SWMU 6 Argo-Tech Temporary Hazardous Waste Drum Storage Area

Available sampling data indicate that the concentrations of VOCs (dichloroethylene [DCE] and trichloroethylene [TCE] and metals (arsenic, chromium, and lead)) in the ground water near this unit have exceeded the action levels proposed by EPA that would trigger a corrective measure study (CMS). Therefore, PRC recommends that this SWMU be included as part of a CMS to identify and evaluate potential remedial alternatives.

SWMU 8 Former Concrete Block Filter Area

Available sampling data indicate that the concentrations of VOCs (1,1,1-trichloroethane [TCA], 1,1-DCE, and tetrachloroethylene [PCE] and metals (arsenic, chromium, and lead) in the ground water near this unit have exceeded the action levels proposed by EPA that would trigger a CMS. PRC therefore recommends that this SWMU be included as part of a CMS conducted to identify and evaluate potential remedial alternatives.

SWMU 9 Chip Dock Area

Available sampling data indicate that the concentrations of VOCs and metals (arsenic, chromium, mercury, and lead) in the ground water near this unit have exceeded the action levels proposed by EPA that would trigger a CMS. In addition, cadmium concentrations in the soil also exceeded the action levels. PRC, therefore recommends that this SWMU be included as part of a CMS conducted to identify and evaluate potential remedial alternatives.

SWMU 10 Trichloroethylene Aboveground Storage Tank

PRC recommends additional sampling in the area to determine the extent of ground-water contamination.

SWMU 11 Argo-Tech Wastewater Treatment Plant

Available sampling data indicate that the concentrations of VOCs (DCE and TCE) and metals (arsenic, chromium, and lead) in the ground water near this unit have exceeded the action levels proposed by EPA that would trigger a CMS. PRC therefore recommends that this SWMU be included as part of a CMS conducted to identify and evaluate potential remedial alternatives.

SWMU 12 Plating Sumps

Available sampling data indicate that the concentrations of VOCs (DCE and TCE) and metals (arsenic, chromium, and lead) in the ground water near this unit have exceeded the action levels proposed by EPA that would trigger a CMS. PRC therefore recommends that this SWMU be included in a CMS conducted to identify and evaluate potential remedial alternatives. PRC also recommends that the integrity of the sumps be checked.

SWMU 14 Argo-Tech Electroplating Filter Cake Dumpster

Available sampling data indicate that the concentrations of VOCs (DCE and TCE) and metals (arsenic, chromium, and lead) in the ground water near this unit have exceeded the action levels proposed by EPA that would trigger a CMS. PRC therefore recommends that this SWMU be included in a CMS conducted to identify and evaluate potential remedial alternatives.

SWMU 16 Textron Filter Cake Dumpster

Available sampling data indicate that the concentrations of VOCs (DCE and TCE) and metals (arsenic, chromium, and lead) in the ground water near this unit have exceeded the action levels proposed by EPA that would trigger a CMS. PRC therefore recommends that this SWMU be included in a CMS conducted to identify and evaluate potential remedial alternatives.

SWMU 17 JP-4 Underground Storage Tank Farm

Available sampling data indicate that the concentrations of VOCs (benzene) and metals (arsenic, chromium, and lead) in the ground water near this unit have exceeded the action levels proposed by EPA that would trigger a CMS. Polychlorinated biphenyl (PCB) concentrations in the soil also have exceeded the proposed action levels. The exact source of the contamination is unknown. PRC therefore recommends that this SWMU be included in a CMS conducted to identify and evaluate potential remedial alternatives. PRC also recommends that the tanks be tested for leaks and to determine their integrity.

SWMU 18 Former Underground Storage Tank Farm 1

Available sampling data indicate that the concentrations of VOCs (benzene) in the ground water near this unit have exceeded the action levels proposed by EPA that would trigger a CMS. The exact source of the contamination is unknown. PRC therefore recommends that this SWMU be included in a CMS conducted to identify and evaluate potential remedial alternatives.

SWMU 19 Former Underground Storage Tank Farm 2

Available sampling data indicate that the concentrations of VOCs (benzene) in the ground water near this unit have exceeded the action levels proposed by EPA that would trigger a CMS. The exact source of the contamination is unknown. PRC therefore recommends that this SWMU be included in a CMS conducted to identify and evaluate potential remedial alternatives.

SWMU 20 Former Underground Storage Tank Farm 3

Available sampling data indicate that the concentrations of VOCs (benzene) and metals (arsenic, chromium, and lead) in the ground water near this unit have exceeded the action levels proposed by EPA that would trigger a CMS. PCB concentrations in the soil also have exceeded the proposed action levels. The exact source of the contamination is unknown. PRC therefore recommends that this SWMU be included in a CMS conducted to identify and evaluate potential remedial alternatives.

SWMU 21 Former Underground Storage Tank Farm 4

Available sampling data indicate that the concentrations of VOCs (vinyl chloride) and metals (arsenic, chromium, and lead) in the ground water near this unit have exceeded the action levels proposed by EPA that would trigger a CMS. The exact source of the contamination is unknown. PRC therefore recommends that this SWMU be included in a CMS conducted to identify and evaluate potential remedial alternatives. PRC also recommends conducting a study to determine whether all tanks in this tank farm have been removed.

SWMU 22 Scupper Area

Available sampling data indicate that elevated concentrations of total petroleum hydrocarbons (TPH) in the soil near this unit. TPH concentrations have ranged from 58 mg/kg to 26,000 mg/kg. The exact source of the contamination is unknown. PRC recommends additional soil sampling to determine the extent of the contamination. Ground-water sampling in this area also should be conducted.

SWMU 24 Bay k-7 Sump

Available sampling data indicates that relatively high concentrations of semivolatiles, ranging from 3,800 mg/kg to 58,000 mg/kg, and PCBs at 140 mg/kg were obtained from the sump. PRC recommends that soils and sediment be removed from the sump and disposed of according to applicable regulations. PRC also recommends that additional sampling be conducted to determine whether there have been releases to the soil or ground water.

SWMU 25 Building 24 and Associated Drain Lines

Available sampling data indicate that elevated concentrations of VOCs (TCE; cis-1,2-DCE; PCE; 1,1,2,2-tetrachloroethane [PCA]; TPH; and toluene) and metals (arsenic, cadmium, chromium, lead, and mercury) in the soil near this unit. TPH concentrations ranged from 49 mg/kg to 780 mg/kg. The exact source of the contamination is unknown. PRC recommends additional soil sampling to determine the source and extent of the contamination.

AOC 1 Railroad Spur/Lobby 3

Available sampling data indicate that the concentrations of VOCs (TCE and vinyl chloride) and metals (arsenic, chromium, and lead) in the ground water near this unit have exceeded the action levels proposed by EPA that would trigger a CMS. Arsenic and chromium concentrations in the soil also exceeded action levels. The exact source of the contamination is unknown. PRC therefore recommends that this SWMU be included in a CMS conducted to identify and evaluate potential remedial alternatives.

AOC 2 Post 1

Available sampling data indicates that 1,1,1-TCA and 2-hexanone were present in the ground water near this unit. PRC recommends that further sampling of the ground water be conducted to determine the extent of the contamination. Sampling of the soil also should be conducted.

AOC 3 Building 7 Tank Farm

Available sampling data indicate elevated concentrations of VOCs (chloroform; 1,1-DCE; cis-1,2-dichlorobenzene; PCE; TCE; 1,1,1-TCA; and vinyl chloride) and metals (arsenic, cadmium, chromium, lead, and mercury) in the ground water near this unit. VOC concentrations ranged from 5 ppb to 320 ppb. Soils in this area also exhibited elevated levels of VOCs and metals. TPH concentrations in the soil ranged from 5.3 mg/kg to 290 mg/kg. The exact source of the contamination is unknown. PRC recommends additional soil and ground-water sampling to determine the source and extent of the contamination.

AOC 4 Forge Shop Addition

Available sampling data indicate elevated concentrations of VOCs (TCE; trans-1,2-DCE; and cis-1,2-DCE) and metals (arsenic, cadmium, and lead) in the soil near this unit. Lead concentrations ranged from 16 mg/kg to 6,400 mg/kg. Cadmium concentrations (61 mg/kg) exceeded the action level proposed by EPA that would trigger a CMS. The exact source of the contamination is unknown. PRC therefore recommends that this AOC be included in a CMS conducted to identify and evaluate potential remedial alternatives.

AOC 5 Colwel Fill Area

Available sampling data indicate elevated concentrations of metals (arsenic, chromium, lead, and mercury) in the soil near this unit. Lead concentrations ranged from 4.7 mg/kg to 89 mg/kg. Mercury concentrations (24 mg/kg) exceeded the action level proposed by EPA that would trigger a CMS. The exact source of the contamination is unknown. PRC therefore recommends that this AOC be included in a CMS conducted to identify and evaluate potential remedial alternatives.

AOC 6 Colwel Complex

Available sampling data indicate detectable quantities of xylene and elevated concentrations of metals (arsenic, chromium, and lead) in the soil near this unit. PCB concentrations in the soil near building 40 exceeded the action level proposed by EPA that would trigger a CMS. The exact source of the contamination is unknown. PRC therefore recommends that this AOC be included in a CMS conducted to identify and evaluate potential remedial alternatives.

AOC 7 Compressor Blowdown Area

Available sampling data indicate elevated concentrations PCE and TPH in the soil near this unit. PRC recommends ground-water sampling and additional sampling of the soil be conducted in this area to determine the extent of the contamination.

AOC 8 Former Underground Storage Tank Farm 5

Available sampling data indicate elevated concentrations of VOCs (TCE; 1,2-DCE; and TPH) in the soil near this unit. TPH concentrations ranged from 58 mg/kg to 26,000 mg/kg. The exact source of the contamination is unknown. PRC recommends additional soil sampling to determine the extent of the contamination. Ground-water sampling in this area also should be conducted.

1.0 INTRODUCTION

PRC Environmental Management, Inc. (PRC) received Work Assignment No. C05087 from the U.S. Environmental Protection Agency (EPA) under Contract No. 68-W9-0006 (TES IX) to conduct preliminary assessments (PA) and visual site inspections (VSI) of hazardous waste treatment and storage facilities in Region 5.

As part of the EPA Region V Environmental Priorities Initiative, the Resource Conservation and Recovery Act (RCRA) and Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) programs are working together to identify and address RCRA facilities that have high priority for corrective action using applicable RCRA and CERCLA authorities. The PA/VSI is the first step in the process of setting priorities among facilities for corrective action. Through the PA/VSI process, enough information is obtained to characterize a facility's actual or potential release(s) to the environment from solid waste management units (SWMU) and areas of concern (AOC).

A SWMU is defined as any discernible unit at a RCRA facility in which solid wastes have been placed and from which hazardous constituents might migrate, whether or not the unit was intended to manage solid or hazardous waste.

Units that fall within the definition of a SWMU include:

- RCRA-regulated units, such as container storage areas, tanks, surface impoundments, waste piles, land treatment units, landfills, incinerators, and underground injection wells
- Closed and abandoned units
- Recycling units, wastewater treatment units, and other units that EPA usually has exempted from standards applicable to hazardous waste management units
- Areas contaminated by routine and systematic releases of wastes or hazardous constituents. Such areas might include an area where wood preservative has dripped; a loading and unloading area; or an area where solvent used to wash large parts has dripped continually onto soils.

An AOC is any area where a release to the environment of hazardous waste or constituents has occurred or is suspected to have occurred on a nonroutine and nonsystematic basis. This includes any area where the possibility of such a release in the future is considered strong.

The purpose of the PA is to:

- Identify SWMUs and AOCs at the facility
- Obtain information on the operational history of the facility
- Obtain information on releases from any units at the facility
- Identify data gaps and other information needs to be filled during the VSI

The PA includes a general review of all relevant documents and files located at state offices and at the EPA Region 5 office in Chicago.

The purpose of the VSI is to:

- Identify SWMUs and AOCs not discovered during the PA
- Identify releases not discovered during the PA
- Provide a specific description of the environmental setting
- Provide information on release pathways and the potential for releases to each medium
- Confirm information obtained during the PA regarding operations, SWMUs, AOCs, and releases

The VSI includes interviewing appropriate facility staff, inspecting the entire facility to identify all SWMUs and AOCs, photographing all SWMUs, identifying evidence of releases, initially identifying potential sampling locations, and obtaining all information necessary to complete the PA/VSI report.

This report documents the results of a PA/VSI of the Argo-Tech Corporation, formerly TRW, Inc., in Euclid, Ohio. The PA was completed on April 16, 1991. PRC gathered and reviewed information from Ohio EPA (OEPA) and from EPA Region V RCRA files. The VSI was conducted on August 28, 1991. It included interviews with representatives from TRW and

Argo-Tech and a walk-through inspection of the facility. Twenty-five SWMUs and 8 AOCs were identified at the facility.

PRC completed EPA Form 2070-12 using information gathered during the PA/VSI. This form is included in Attachment A. The VSI is summarized and inspection photographs are included in Attachment B. Field notes from the VSI are included in Attachment C.

2.0 FACILITY DESCRIPTION

This section describes the facility's location, past and present operations (including waste management practices), waste generating processes, release history, regulatory history, environmental setting, and receptors.

2.1 FACILITY LOCATION

The Argo-Tech Corporation (the facility or TRW) is located at 23555 Euclid Avenue, Cleveland, Cuyahoga County, Ohio (latitude 41°34'40"N, longitude 81°31'18"W). The facility is located in a light industrial and residential area of Euclid, Ohio. The facility occupies approximately 200 acres and is bordered to the north by a Norfolk and Western Railroad right of way and light industrial facilities. The Reliance Electric Company lies to the east of the facility. East 222nd Street borders the facility to the west, with Euclid Avenue to the south. There are residential areas to the south and west of the facility. Figure 1 shows the facility location.

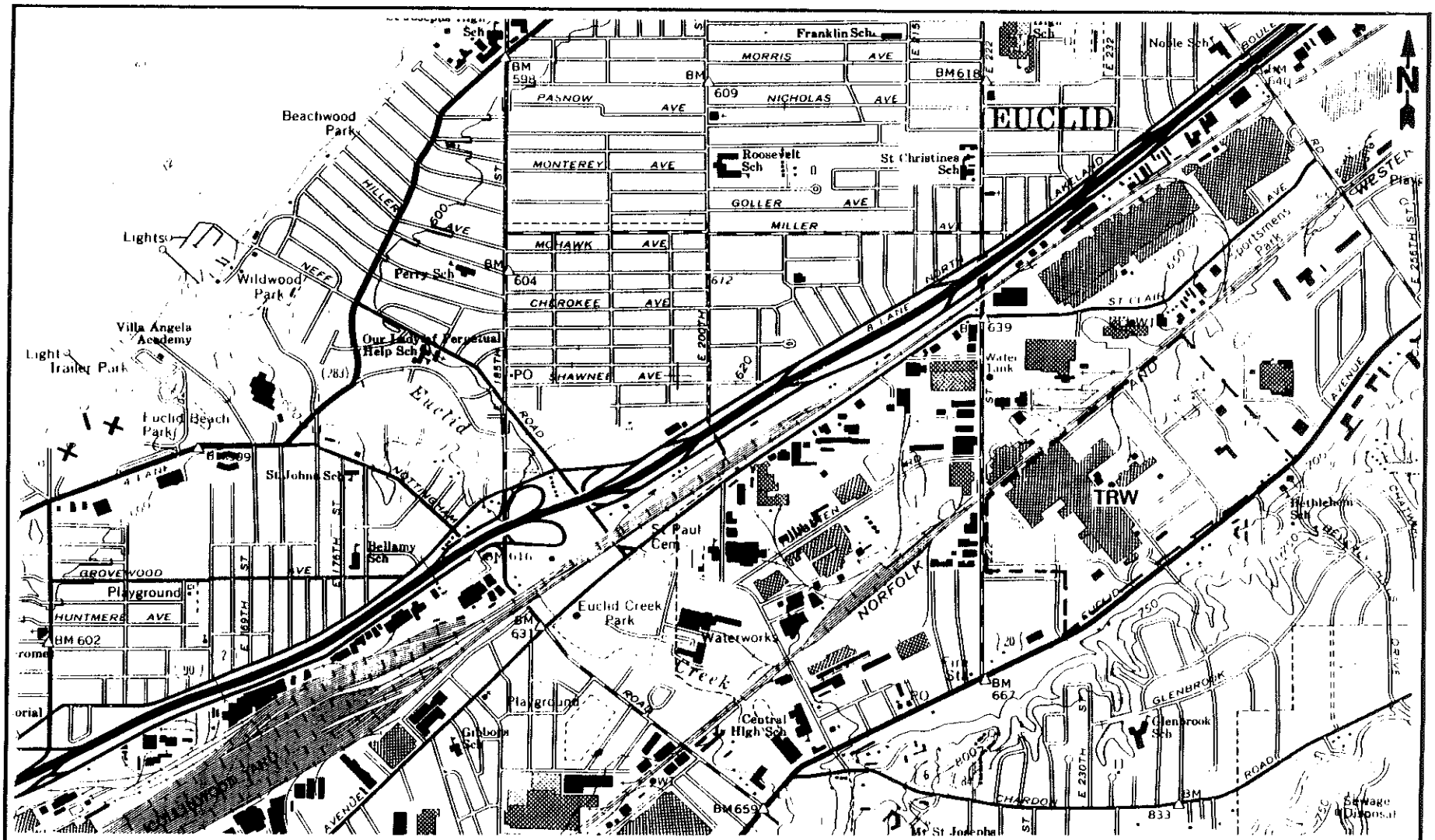
2.2 FACILITY OPERATIONS

The facility was built in 1941 by Thompson Aircraft Products Company (TAPCO, later TRW, Inc.). The facility manufactured precision parts for aircraft, naval vessels, and other military and industrial uses. Manufacturing processes included a variety of stamping and plating procedures. Argo-Tech Corporation acquired the facility on October 20, 1986. Air Foil Forging Corporation purchased a portion of the facility on August 29, 1986. Present manufacturing operations at the facility are similar to previous TRW operations (Argo-Tech, 1991). Figure 2 shows the layout of the facility.

Currently, six separate companies occupy the facility. Together, the companies employ approximately 2,000 people on three shifts per day. A brief summary of each company and its operations is presented below.

Argo-Tech Corporation produces aircraft fuel pumps. Machining, metal finishing, assembly, and testing are part of Argo-Tech's operations.

Airfoil Forging Textron produces compressor blades. Manufacturing of compressor blades involves four steps: forging; kolene treatment; metal treatment; and machining. Forging and



SCALE 1:24000

1 1/2 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

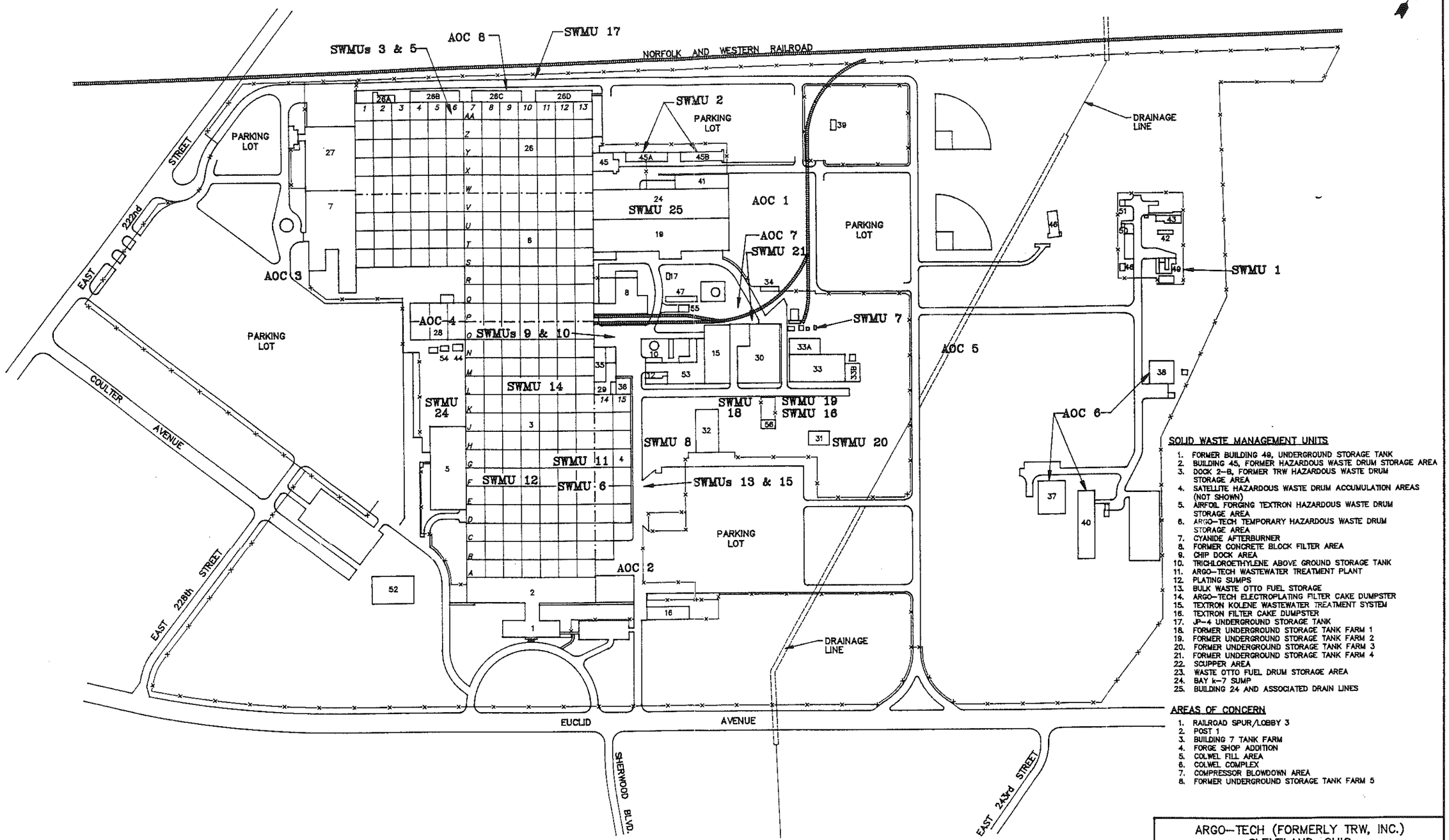
SOURCE: USGS, 1979

TRW INC.
EAST CLEVELAND, OHIO

FIGURE 1

FACILITY LOCATION

PRC ENVIRONMENTAL MANAGEMENT, INC.



SOLID WASTE MANAGEMENT UNITS

1. FORMER BUILDING 49, UNDERGROUND STORAGE TANK
2. BUILDING 45, FORMER HAZARDOUS WASTE DRUM STORAGE AREA
3. DOCK 2–B, FORMER TRW HAZARDOUS WASTE DRUM STORAGE AREA
4. SATELLITE HAZARDOUS WASTE DRUM ACCUMULATION AREAS (NOT SHOWN)
5. AIRFOIL FORGING TEXTRON HAZARDOUS WASTE DRUM STORAGE AREA
6. ARGO–TECH TEMPORARY HAZARDOUS WASTE DRUM STORAGE AREA
7. CYANIDE AFTERBURNER
8. FORMER CONCRETE BLOCK FILTER AREA
9. CHIP DOCK AREA
10. TRICHLOROETHYLENE ABOVE GROUND STORAGE TANK
11. ARGO–TECH WASTEWATER TREATMENT PLANT
12. PLATING SUMPS
13. BULK WASTE OTTO FUEL STORAGE
14. ARGO–TECH ELECTROPLATING FILTER CAKE DUMPSTER
15. TEXTRON KOLENE WASTEWATER TREATMENT SYSTEM
16. TEXTRON FILTER CAKE DUMPSTER
17. JP–4 UNDERGROUND STORAGE TANK
18. FORMER UNDERGROUND STORAGE TANK FARM 1
19. FORMER UNDERGROUND STORAGE TANK FARM 2
20. FORMER UNDERGROUND STORAGE TANK FARM 3
21. FORMER UNDERGROUND STORAGE TANK FARM 4
22. SCUPPER AREA
23. WASTE OTTO FUEL DRUM STORAGE AREA
24. BAY k–7 SUMP
25. BUILDING 24 AND ASSOCIATED DRAIN LINES

AREAS OF CONCERN

1. RAILROAD SPUR/LOBBY 3
2. POST 1
3. BUILDING 7 TANK FARM
4. FORGE SHOP ADDITION
5. COLWEL FILL AREA
6. COLWEL COMPLEX
7. COMPRESSOR BLOWDOWN AREA
8. FORMER UNDERGROUND STORAGE TANK FARM 5

SOURCE: ENGINEERING–SCIENCE REMEDIAL INVESTIGATION, JULY 1990.

NOT TO SCALE

ARGO–TECH (FORMERLY TRW, INC.)
CLEVELAND, OHIO

FIGURE 2

FACILITY LAYOUT

PRC ENVIRONMENTAL MANAGEMENT, INC.

ARGO–LAY.DWG – 12_ a1 – CFR

machining generate metal trimmings, lead coatings, waste graphite, and waste oils. Metal and kolene treatment involves abrasive cleaning, acid and base bath, and heat treatment. Wastes generated during this process include kolene wastewater, nonhazardous waste, and acid and base wash waters which are treated by the Textron kolene wastewater treatment plant (SWMU 15).

International Gear Corporation (IGC) operates several different metal-finishing lines. These lines consist of metal plating, stripping, and etching processes. IGC bought the majority of the plating line from Argo-Tech in 1986. Currently, IGC products constitute approximately 95 percent of the plating done at the facility. The remaining 5 percent of the plating volume is produced by Argo-Tech. Specific plating operations at the facility include chrome, copper, black oxide, manganese phosphate, magnesium anodize, and nickel sulfamate lines. Stripping operations present at the facility include cadmium stripping and nickel stripping. Cyanide and chromate are the major constituents of the nickel and cadmium stripping solutions, respectively. Etching solutions consist of nitric-hydrofluoric acid.

Precision Castparts Corporation Airfoils, Inc. (PCC) manufactures casts for helicopter transmissions. Manufacturing processes are similar to IGC's operations. Marine Mechanical Corporation (MMC) manufactures casts for nuclear drive transmissions. Manufacturing and waste-generation processes are similar to IGC's operations. Both PCC and MMC are Department of Defense operations; therefore, information about their manufacturing operations is classified.

There are several areas at the facility that have underground storage tanks (UST). A JP-4 aviation fuel UST farm is bounded by buildings 30A, 31, 33, and 56. This area has two 10,000-gallon virgin fuel tanks, a 10,000 gallon oil/water separator tank, and a 20,000 gallon dump tank (Argo-Tech, 1991). Four former UST farms also were in this area. A tank farm for aviation fuel near building 7 was removed in the 1970s. Argo-Tech now has USTs in that area. A 1,000-gallon steel separator tank near building 49 was used to store waste Otto fuel from torpedo testing. This tank was discovered to be leaking in 1985 and removed according to the closure plan submitted by Engineering-Science (ES) in 1989 (ES, 1988, 1989).

Table 1 lists the SWMUs identified during the PA/VSI.

Table 1
Solid Waste Management Units (SWMUs)

SWMU Number	SWMU Name	RCRA Hazardous Waste Management Unit*	Status
1	Former Building 49, Underground Storage Tank	Yes	RCRA closure approved by OEPA on 9/17/90
2	Building 45, Former Hazardous Waste Drum Storage Area	Yes	RCRA closure approved by OEPA on 9/17/90
3	Dock 2-B, Former TRW Hazardous Waste Drum Storage Area	Yes	RCRA closure approved by OEPA on 9/17/90
4	Satellite Hazardous Waste Drum Accumulation Areas	Yes	Active
5	Airfoil Forging Textron Hazardous Waste Drum Storage Area	Yes	Active
6	Argo-Tech Temporary Hazardous Waste Drum Storage Area	Yes	Active
7	Cyanide Afterburner	No	Active
8	Former Concrete Block Filter Area	No	Inactive; ceased operation in 1984
9	Chip Dock Area	Yes	Active
10	Trichloroethylene Aboveground Storage Tank	No	Active
11	Argo-Tech Wastewater Treatment Plant	No	Active
12	Plating Sumps	No	Active
13	Bulk Waste Otto Fuel Storage	No	Active
14	Argo-Tech Electroplating Filter Cake Dumpster	No	Active
15	Textron Kolene Wastewater Treatment System	No	Active
16	Textron Filter Cake Dumpster	No	Active
17	Underground Storage JP-4 Tank Farm	Yes	Active
18	Former Underground Storage Tank Farm 1	No	Inactive
19	Former Underground Storage Tank Farm 2	No	Inactive
20	Former Underground Storage Tank Farm 3	No	Inactive

SWMU Number	SWMU Name	RCRA Hazardous Waste Management Unit*	Status
21	Former Underground Storage Tank Farm 4	No	Inactive
22	Scupper Area	Yes	Active
23	Waste Otto Fuel Drum Storage Area	Yes	Active
24	Bay k-7 Sump	No	Active
25	Building 24 and Associated Drain Lines	No	Inactive

* A RCRA hazardous waste management unit is one that currently requires or formerly required a RCRA Part A or Part B permit.

2.3 WASTE GENERATING PROCESSES

The facility was built in the 1940s by Thompson Aircraft Products Company later TRW, Inc. Between the 1940s and the 1960s, the facility was used mainly for manufacturing automotive valves (PRC, 1991). Waste management practices during those two decades could not be determined during the PA/VSI.

Currently, numerous wastes are generated at the Argo-Tech facility. Waste-generating operations include forging, heat treatment, machining, metal finishing, and electroplating. Additional waste-generating operations, including manufacturing of aircraft engine parts and weapons testing, took place under contract to the federal government (ES, 1988).

Argo-Tech produces aircraft fuel pumps. Production of these pumps entails four general operations: machining, metal finishing, assembly and testing, and inspection. Each operation generates several waste streams. The machining operation generates metal chips and turnings. These nonhazardous wastes are stored on the chip dock (SWMU 9) until they are shipped off site for reclamation. The machining operation produces nonhazardous waste oils and coolants and hazardous solvents used for cleaning. Hazardous liquid paint-coating wastes are generated during the metal finishing operation. Additional wastes generated by this operation include nonhazardous abrasive cleaners, hazardous solvents, and wastewaters that are treated by the Argo-Tech wastewater treatment plant (SWMU 11). Assembly and testing generate nonhazardous waste oils and coolants, along with hazardous hydrocarbon test fluids and solvents. The hydrocarbon test fluids are primarily aviation fuels such as JP-4. The inspection operation also generates hazardous waste solvents used primarily as cleaners (Argo-Tech, 1991). Hazardous waste solvents, liquid paint coatings, and nonhazardous waste such as oils and coolants that cannot be treated in the wastewater treatment plant are stored in 55-gallon drums in the Argo-Tech temporary hazardous waste drum storage area (SWMU 6).

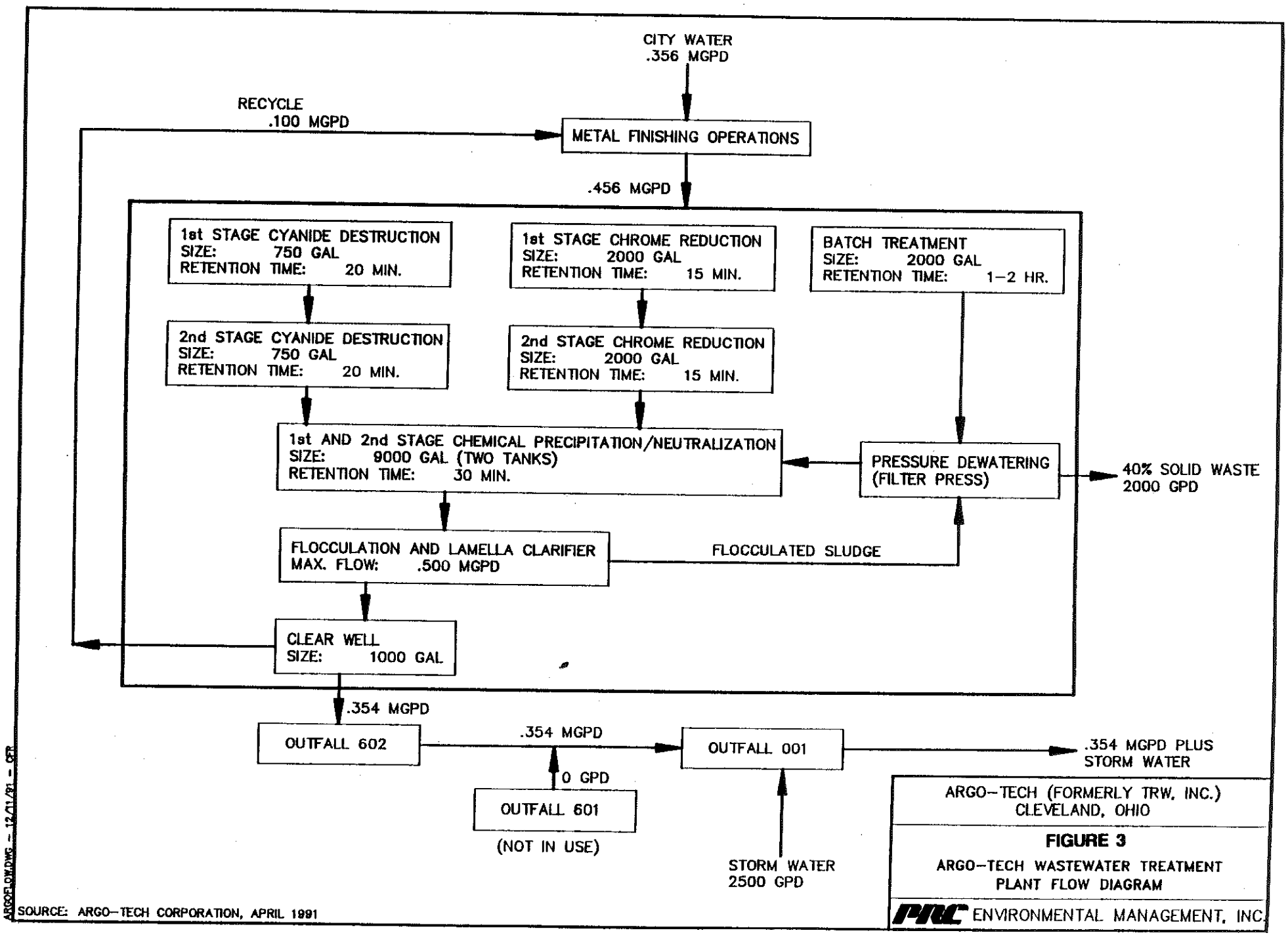
Airfoil Forging Textron, one of the tenants at the Argo-Tech facility, produces compressor blades. Compressor blade production involves four steps: forging, Kolene System descaling, metal treating, and machining. Each process produces a waste stream. Forging handles mostly titanium parts, and generates flash metal trimmings; residual paint coatings, some of which are hazardous due to the lead content; residual graphite; and spent machine oil. The Kolene system is used to remove scale from the titanium parts. The system consists of a Kolene DG salt (a molten solution of NaOH) bath followed by an acid bath. Kolene system wastewaters are sent

through a filter press and discharged to the sanitary sewer system. Solid wastes from the filter press are hazardous and are stored in 55-gallon drums in building 4 (SWMU 16) before they are disposed of off site. The Kolene system is followed by metal treatment. This operation involves three treatments: abrasive cleaning; acid and base bath; and heat treatment. The abrasive cleaning generates nonhazardous wastes, while the acid and base bath wastes are pumped to the Argo-Tech wastewater treatment plant (SWMU 11). The heat treatment operation does not generate any wastes. The final operation is machining, which generates nonhazardous waste cutting oils and coolants used in machining the parts. These wastes are stored in 55-gallon drums in the Airfoil Forging Textron hazardous waste drum storage area (SWMU 5) (Argo-Tech, 1991).

Wastewater from all tenants' various operations at the property is treated at the wastewater treatment plant (SWMU 11) operated by Argo-Tech. Wastewaters containing cyanide are treated in a two-stage process, using two 750-gallon cyanide destruction tanks. Chrome wastes are treated in a two-stage process, using two 2,000-gallon chrome reduction tanks. All wastewaters also are treated in two 9,000-gallon chemical precipitation/neutralization tanks. A flocculation and lamella clarifier removes sludge, which is sent to a filter press for dewatering. The flow diagram in Figure 3 illustrates this process. This hazardous wastewater treatment sludge (EPA Waste Code F006) is stored in 55-gallon drums in the hazardous waste storage area (SWMU 14) before it is taken off site for disposal. The treated water is discharged first to permitted internal Outfall 602, then to permitted Outfall 001, and finally to the storm sewer at East 222nd Street. (There were three outfalls [Outfalls 001, 601, and 602]) listed in the National Pollutant Discharge Elimination System ([NPDES]) permit application but only two ([Outfalls 001 and 602]) are operational ([TRW, 1989]). Storm water from East 222nd Street goes to Lake Erie at two separate discharge locations (PRC, 1991). Treated wastewater is discharged at a rate of approximately 354,000 gallons per day through NPDES Outfall 602 to a storm sewer (Argo-Tech, 1989).

Propulsion Technologies Inc. manufactures and tests torpedoes and missiles. Testing of these devices is conducted in building 33A and generates waste Otto fuel. Otto fuel is 76 percent polypropylene glycol dinitrate (PGDN), 22.5 percent di n-butyl sebacate, and 1.5 percent 2-nitro diphenyl amine (ES, 1988). Waste fuel is stored in 55-gallon drums in building 56 and in bulk storage tanks in building 30 (Argo-Tech, 1991). Torpedo testing also generates cyanide and ammonia waste gases which are treated in the cyanide afterburner (ES, 1988).

There are several satellite accumulation sites at the facility. Argo-Tech has ten satellite areas, containing the following wastes: methyl ethyl ketone (MEK) dioxane mixture; 1,1,1-


CITY WATER
.356 MGPD
RECYCLE
.100 MGPD
METAL FINISHING OPERATIONS
.456 MGPD
1st STAGE CYANIDE DESTRUCTION
SIZE: 750 GAL
RETENTION TIME: 20 MIN.
1st STAGE CHROME REDUCTION
SIZE: 2000 GAL
RETENTION TIME: 15 MIN.
BATCH TREATMENT
SIZE: 2000 GAL
RETENTION TIME: 1–2 HR.
2nd STAGE CYANIDE DESTRUCTION
SIZE: 750 GAL
RETENTION TIME: 20 MIN.
2nd STAGE CHROME REDUCTION
SIZE: 2000 GAL
RETENTION TIME: 15 MIN.
1st AND 2nd STAGE CHEMICAL PRECIPITATION/NEUTRALIZATION
SIZE: 9000 GAL (TWO TANKS)
RETENTION TIME: 30 MIN.
PRESSURE DEWATERING
(FILTER PRESS)
40% SOLID WASTE
2000 GPD
FLOCCULATION AND LAMELLA CLARIFIER
MAX. FLOW: .500 MGPD
FLOCCULATED SLUDGE
CLEAR WELL
SIZE: 1000 GAL
.354 MGPD
OUTFALL 602
.354 MGPD
OUTFALL 001
.354 MGPD PLUS
STORM WATER
0 GPD
OUTFALL 601
(NOT IN USE)
STORM WATER
2500 GPD
ARGO–TECH (FORMERLY TRW, INC.)
CLEVELAND, OHIO
FIGURE 3
ARGO–TECH WASTEWATER TREATMENT
PLANT FLOW DIAGRAM
PRC ENVIRONMENTAL MANAGEMENT, INC.
SOURCE: ARGO–TECH CORPORATION, APRIL 1991
ARGOFLOW.DWG – 12/21/91 – GFR

trichloroethane; xylene; chlorinated oil; freon; solid Otto fuel; and solvents (perchloroethylene and trichloroethylene). IGC has three satellite areas for the following wastes: waste paint; micro strip B (methylene chloride); waste Turco (a toluene-based rubber coating). Airfoil Forging Textron has one satellite accumulation drum containing 1,1,1-trichloroethane still bottoms (Argo-Tech, 1991). Table 2 lists the solid wastes at the facility.

2.4 RELEASE HISTORY

TRW first reported evidence of a release to OEPA on October 31, 1985. A wetland area and soil associated with the torpedo test building (Building 49) had been contaminated with Otto fuel containing propylene glycol dinitrate (PGDN) and cyanide. The source of the contamination was reported to be wastewater which had been discharged from torpedo testing operations. Before 1985, a 1,000-gallon underground steel separator tank was used to collect liquid residues of torpedo fuel. Intermittent discharges of 200 to 300 gallons from the tank had contaminated the soils and wetland area approximately 100 feet southeast of the building (TRW, 1988). The facility did not hold a National Pollution Discharge Elimination System (NPDES) permit for this discharge (OEPA, 1988g). After the discovery, overflows from the separator tank were diverted and stored in three holding tanks west of building 49. Between September and October 1989, TRW removed the 1,000-gallon separator tank, the discharge pipe, and the holding tanks. A polygon area of contaminated soil was excavated. The adjacent runoff stream was dredged, and soil was excavated to a depth of 2.5 feet. In November 1989, the excavated area associated with the holding tank was backfilled (TRW, 1990b). In July 1990, Engineering-Science certified that building 49 was cleaned in accordance with RCRA guidelines. OEPA approved the closure on August 17, 1990 (TRW/Argo-Tech, 1991). The wetland was filled in and replaced by a paved road. A new torpedo test facility was built outside building 33, and all torpedo test activities were shifted to that area.

On July 1, 1987, a verbal report was made to EPA and OEPA regarding the discovery of soil contaminated with JP-4 aviation fuel at the JP-4 tank farm (SWMU 17). The date and time of the initial release and the quantity of JP-4 fuel involved is not documented (TRW, 1987a). TRW initiated a study to identify the magnitude and scope of contamination. Between June 22 and July 10, 1987, thirteen ground-water monitoring wells, two soil borings, and seven soil probes were completed.

Table 2

Solid Wastes

Waste/EPA Waste Code	Source	Primary Management Unit*
Otto fuel (D001, D003)	Torpedo testing	1, 7, 13, 23
Electroplating sludge (F006)	Plating line	2, 8, 11, 14, 16
Trichloroethylene (F001)	Manufacturing process	3, 4
1,1,1-Trichloroethane (F001)	Manufacturing process	5, 6
Trichloroethylene (F001, U228)	Manufacturing process	10
Freon (F001)	Manufacturing process	4, 6
MEK (F005)	Manufacturing process	3
MEK-dioxane mixture (F005, U159)	Dry film	4, 6
Ceramic Slip (F008)	Manufacturing process	3
Corrosive Solid	Manufacturing process	3
Perchloroethane (F001)	Manufacturing process	4, 6
Xylene (F003)	Manufacturing process	4, 6
Waste paint (D001, D011)	Coating process	4, 6
Chlorinated oil (F001)	Manufacturing process	4, 6, 9
Micro strip B (Methylene Chloride, F001)	Manufacturing process	4, 6
Waste Turco (toluene-based rubber, F005, U220)	Manufacturing process	4, 6, 22
Waste oil	Manufacturing process	4, 6, 9, 22
Oxidizing material (D001)	Manufacturing process	6
Metal scraps and cuttings	Manufacturing process	9
Electroplating wastewater	Plating lines	11
Alkaline cleaning solutions	Metal finishing	11, 12
Oxide plating solutions	Metal finishing	11, 12
Anodizing solutions	Metal finishing	11, 12
Cyanide stripping solutions	Metal finishing	11, 12
Etching solutions	Metal finishing	11, 12
Flammable solid poison (D001, D008)	Torpedo testing	13, 23
Kolene wastewater	Kolene system	15

Table 2

Solid Wastes (continued)

Waste/EPA Waste Code	Source	Primary Management Unit*
Kolene filter cakes	Kolene system	16
Flammable liquid (D001, D002, D007, D008)	Manufacturing process	17, 18, 19, 20, 21, 22, 23, 24
Aviation fuel (D001)	Engine pump testing	17, 18, 19, 21
Mercury wastes	Drain lines	25

Note:

* A primary management unit refers to a SWMU that currently manages the waste.

On November 4, 1987, TRW reported to EPA and OEPA that analysis of samples taken between June 22 and July 10, 1987 from the wells and from the storm and sanitary sewer flows indicated that the soil and ground water at former underground storage tank (UST) areas (SWMU 18 through 21) were contaminated with chlorinated solvents, cyanide, metals, petroleum products, and polychlorinated biphenyls (PCB) (Sitex Consultants Midwest ([SITEX], 1987). The date and time of the initial release and the quantities of materials released were not documented (TRW, 1987b).

On March 30, 1988, TRW provided OEPA with analytical results of data collected during the initial investigation of contaminated areas (OEPA, 1988f). The soil at the former UST area east of building 31 was characterized as containing organic compound residuals. Ground-water samples contained organic solvents and PCB-1248 (26,000 ug/l). The soil at the UST area located south of building 15 was characterized by semivolatile organics (50 to 180 mg/kg) and benzene near detection levels. Ethylbenzene, xylenes, and aliphatic hydrocarbons were detected in soil associated with both existing and former UST areas outside building 33. Vinyl chloride (5 ug/l) was detected in ground-water samples. The soils and ground water at the chip dock area north of building 4 contained chlorinated hydrocarbons, in concentrations ranging from 4 to 180 mg/kg for soils, and 3,500 to 140,00 ug/l for ground water. Pentachlorophenol (57 ug/l) and PCB-1260 (49 ug/l) were detected in ground-water samples. Tetrachloroethane (PCA); trichloroethene (TCE); and 1,1,1-trichloroethane in concentrations ranging from 1 to 180 mg/kg in soil, and from 2 to 140,000 ug/l in ground water were detected at several locations at the facility. Chloroform and 1,1,1-trichloroethane were the predominant VOCs detected in the storm and sanitary sewer water. Trace metals such as cadmium, nickel, antimony, lead, and zinc were detected in soils and ground-water samples where petroleum residuals were present (SITEX, 1987).

No releases to air were documented.

2.5 REGULATORY HISTORY

TRW, Inc. submitted a Notification of Hazardous Waste Activity to EPA on November 11, 1980.

On November 17, 1980, TRW submitted a Part A permit application which identified F-, D-, and U-listed wastes being treated and stored at the facility (TRW, 1980). OEPA granted TRW interim status on May 14, 1982.

OEPA determined that, after October 9, 1981, the facility was operating in violation of Ohio Revised Code (ORC) Chapter 3734 because the facility failed to obtain a hazardous waste installation and operation permit. In a May 16, 1984 letter to TRW, OEPA required that the facility resolve its permit status by submitting 1) a Part A application; 2) a facility waste analysis plan; 3) a general facility inspection schedule; 4) a contingency plan; 5) a closure plan; 6) a description of personnel training; 7) a closure financial assurance instrument; 8) a demonstration of financial assurance; and 9) associated unpaid permit fees totaling $3,000 (OEPA, 1984). TRW submitted the requested documentation and fees to OEPA on June 4, 1984 (TRW, 1984).

On October 20, 1986, TRW sold the facility to Argo-Tech, Inc. TRW also sold two operations divisions to Textron and Precision Casting Corporation, both tenants to Agro-Tech. Agro-Tech has continued operations similar to TRW at the facility since then. Argo-Tech also leases other areas of the facility to Technautics Corporation. After sale of the facility to Argo-Tech, TRW maintained responsibility for RCRA closure of SWMUs.

TRW canceled its liability insurance for the facility effective January 1, 1986. In a series of communications between December 1986 and April 1987, Ohio EPA requested a financial test from the facility. The facility provided assurance that TRW would remain financially responsible for subsequent remediation activities at the site (OEPA, 1986; OEPA, 1987). Although TRW has continued its involvement in remedial activities at the facility, details of TRW's involvement and responsibilities along with Agro-Tech are unclear.

On November 30, 1987, TRW submitted to OEPA notification of withdrawal of its Part A application program and a closure plan for dock 2-B (SWMU 3), building 45 (SWMU 2), and Building 49 (SWMU 1) (TRW, 1987c). On February 2, 1988, OEPA investigated contamination associated with product releases which were reported in October 1985, July 1987, and November 1987. The first incident, reported on October 31, 1985, involved a release of Otto fuel (containing PGDN and cyanide) from the storage area on the eastern side of building 49 (SWMU 1). OEPA confirmed that the October 1985 release was addressed in the facility's closure plan (building 49). The second incident, reported on July 1, 1987, involved a release of an undocumented quantity of JP-4 aviation fuel from the JP-4, underground storage tank farm (SWMU 17). Subsequent investigations, during which soil and ground-water samples were taken, revealed that additional areas (SWMUs 19 through 21) were contaminated with chlorinated solvents, cyanide, metals, petroleum products, and PCBs. On November 4, 1987, the facility reported these findings as a third incident of release. OEPA determined that the underground storage tanks involved in the

July 1987 and November 1987 incidents were subject to RCRA corrective action provisions, rather than closure requirements (OEPA, 1988a).

In a February 16, 1988 letter to EPA, TRW requested a 30-day extension of the 90-day temporary waste storage limit. The facility attributed its inability to dispose of waste within the 90-day limit to "unforeseen, temporary and uncontrollable circumstances" (TRW, 1988).

After a series of communications between July and November 1988 regarding revisions to the closure plan, OEPA approved the closure plan (dock 2B, building 45, and building 49) on December 6, 1988 (OEPA, 1988d; OEPA, 1988e; OEPA, 1988f; OEPA, 1988g; TRW, 1988). Because OEPA was not authorized at that time to administer federal RCRA programs TRW, Inc. was not permitted to implement closure until EPA approved the plan. In an August 8, 1989 letter to TRW, OEPA informed the facility that EPA approval had been received on June 30, 1989 (OEPA, 1989e). TRW began closure operations on August 18, 1989.

A financial record review of the former facility was conducted on May 2, 1989. When it received the facility's financial test, OEPA determined that the facility was in compliance with regulations governing financial assurance for facility closure and liability (OEPA, 1989d).

On February 5, 1990, TRW requested an extension of the 90-day waste storage limit for the units undergoing closure (dock 2B, building 42, and building 49) due to its inability to clean-close within the time limit (TRW, 1990a). Ohio EPA granted the facility an extension through July 9, 1990 (OEPA, 1990a).

On July 13, 1990, TRW submitted documentation which certified that closure was complete and requested the withdrawal of the RCRA Part A hazardous waste permit application (TRW, 1990b). OEPA conducted a closure inspection of the areas covered by the closure plan (dock 2b, building 45, and building 49) on September 6, 1990. OEPA approved TRW closure and withdrew the Part A permit application on September 17, 1990. OEPA identified the facility as a large-quantity hazardous waste generator, because the facility remained liable for wastes that were generated during post-closure remediation activities (OEPA, 1990b).

Argo-Tech purchased the former TRW facility on October 20, 1986. A summary of Argo-Tech's regulatory history follows.

Both Airfoil Forging Textron (Textron) and PCC Airfoils, Inc. (PCC) also purchased some manufacturing operations from TRW in 1986. Argo-Tech, however, maintained ownership of the property. Subsequently, Textron and PCC purchased their respective properties from Argo-Tech (Richardson, 1991a). Argo-Tech retained the same EPA identification number that the former TRW facility had had (OHD 004 179 453). Textron obtained a separate identification number (No. OHD 981 534 399). The other companies operating at the former TRW facility retained the same EPA identification numbers that the former TRW facility had had. Correspondence between OEPA and EPA clarified the liability issues. To do so necessitated the assignment of separate identification numbers, and OEPA instructed the companies at the former TRW facility to re-submit notification forms (OEPA, 1988b; OEPA, 1988c).

Argo-Tech submitted Notification of Hazardous Waste Activities to EPA on February 17, 1989 (Argo-Tech, 1989a). PCC is identified under Argo-Tech's identification number (No. OHD 157 367 301) because PCC listed Argo-Tech as the primary property owner. As of September 1991, Argo-Tech had contacted PCC and OEPA to clarify this error (Richardson, 1991c).

Propulsion Technologies, Inc. (PTI) submitted a Notification of Hazardous Waste Activity to EPA on November 27, 1990 (PTI, 1990). Marine Mechanical Corporation (MMC) submitted a Notification of Hazardous Waste Activity to U.S. EPA on November 27, 1990. The EPA identification number for International Gear Corporation (IGC) is OHD 198 540 593 (Argo-Tech, 1991)

On December 27, 1973, in accordance with regulations of the National Pollution Discharge Elimination System (NPDES) permit program, EPA issued a permit for TRW's Wastewater treatment system. The NPDES permit (No. OHD 000281) stipulated that reduction of pollution be achieved by December 1, 1974 and compliance with effluent limitations be achieved by January 1, 1975 (TRW, 1973b). TRW completed modifications to the Wastewater treatment system on April 1, 1975.

On July 8, 1975, TRW requested that EPA modify TRW's NPDES permit requirements to eliminate ammonia monitoring and to alter particulate monitoring requirements because the concentrations of each compound in discharge from the facility is below baseline levels. The permit was not modified (TRW, 1975). On May 9, 1978, TRW submitted a NPDES permit renewal application which included the same modifications requested in the July 8, 1975 application (TRW, 1978).

In an October 30, 1981 letter to TRW, OEPA informed the facility that, under a consolidated permit regulation effective May 19, 1980, the agency was required to review effluent data for metals, cyanides, and phenols before issuing NPDES permits. TRW notified Ohio EPA on February 17, 1982 that the facility had hired a consultant to provide the agency with the required analytical effluent data (TRW, 1982).

On May 24, 1984, OEPA renewed and modified NPDES Permit No. OH 0000281 to include installation of flow measurement instruments. On June 4, 1984, EPA included Outfalls 001, 002, and 602 to the NPDES permit. On September 9, 1985, in accordance with the final permit, TRW submitted a Toxic Organic Pollutant Management Plan to OEPA.

In a February 16, 1989 letter to Ohio EPA, TRW notified the agency of its intention to transfer the NPDES permit to Argo-Tech, the current owner of the facility (TRW, 1989).

TRW submitted a renewal application for NPDES Permit No. OH 0000281 to EPA in the name of Argo-Tech. On February 21, 1989, OEPA conducted a facility inspection for an NPDES permit renewal. On July 3, 1989, the transfer of NPDES Permit No. OH 0000281 from TRW to Argo-Tech was authorized by OEPA (OEPA, 1989c). OEPA prepared a Water-Quality-Based Effluent Unit Report, which was used to update Argo-Tech's NPDES permit (OEPA, 1989a). OEPA submitted a final NPDES permit to Argo-Tech on September 29, 1989 (Argo-Tech, 1989b).

In a January 19, 1990 letter to OEPA, Argo-Tech submitted a permit application for the installation of flow-measurement instruments to monitor treated process water from Station 602 (Argo-Tech, 1990). In compliance with NPDES requirements for permit No. OH 0000281, an Argo-Tech subcontractor to TRW submitted a Water Usage and Discharge Study on September 24, 1990 (CT Consultants, 1990).

No air permits were identified in the file review.

2.6 ENVIRONMENTAL SETTING

This section describes the climate, flood plain and surface water, geology and soils, and ground water in the vicinity of the TRW facility.

2.6.1 Climate

Average temperatures in Cleveland range from a low of 26 degrees Fahrenheit ('F) in January to a high of 72 'F in July. In summer, northern areas nearest Lake Erie are markedly colder than the rest of the area. Precipitation is well distributed during the year. From late fall through winter, snow squalls are frequent and total snowfall is normally heavy. Of the total annual precipitation, 60 percent usually falls between April and September. Average relative humidity in mid-afternoon is 60 percent, and the average humidity at dawn is 80 percent. The percentage of possible sunshine is 70 percent in summer and 30 percent in winter. The prevailing wind direction is from the south 10 out of the 12 months during the year. Annual average wind speed is 10.6 miles per hour. Highest monthly average wind speed is 12.3 miles per hour, in January. A wind rose diagram for the Cleveland area was not available. Average annual precipitation is 35.4 inches, and the intensity of a 1-year, 24-hour rainfall is 2 inches (National Oceanic and Atmospheric Administration, 1990). Average annual net precipitation is 5.4 inches.

2.6.2 Flood Plain and Surface Water

The facility is within three-quarters of a mile Euclid Creek, which flows northwest into Lake Erie. Lake Erie is located 2 miles northwest of the facility. Regional surface drainage in the area is northward toward Lake Erie. The facility is not located in a 100-year flood-plain (U.S. Geological Survey [USGS], 1974). Most of the facility is drained by a storm sewer system. Figure 2 shows the main storm water drainage line. Open surface-water ditches flow directly into the storm sewer system, which discharges into Lake Erie. No other surface-water features exist on the facility.

2.6.3 Geology and Soils

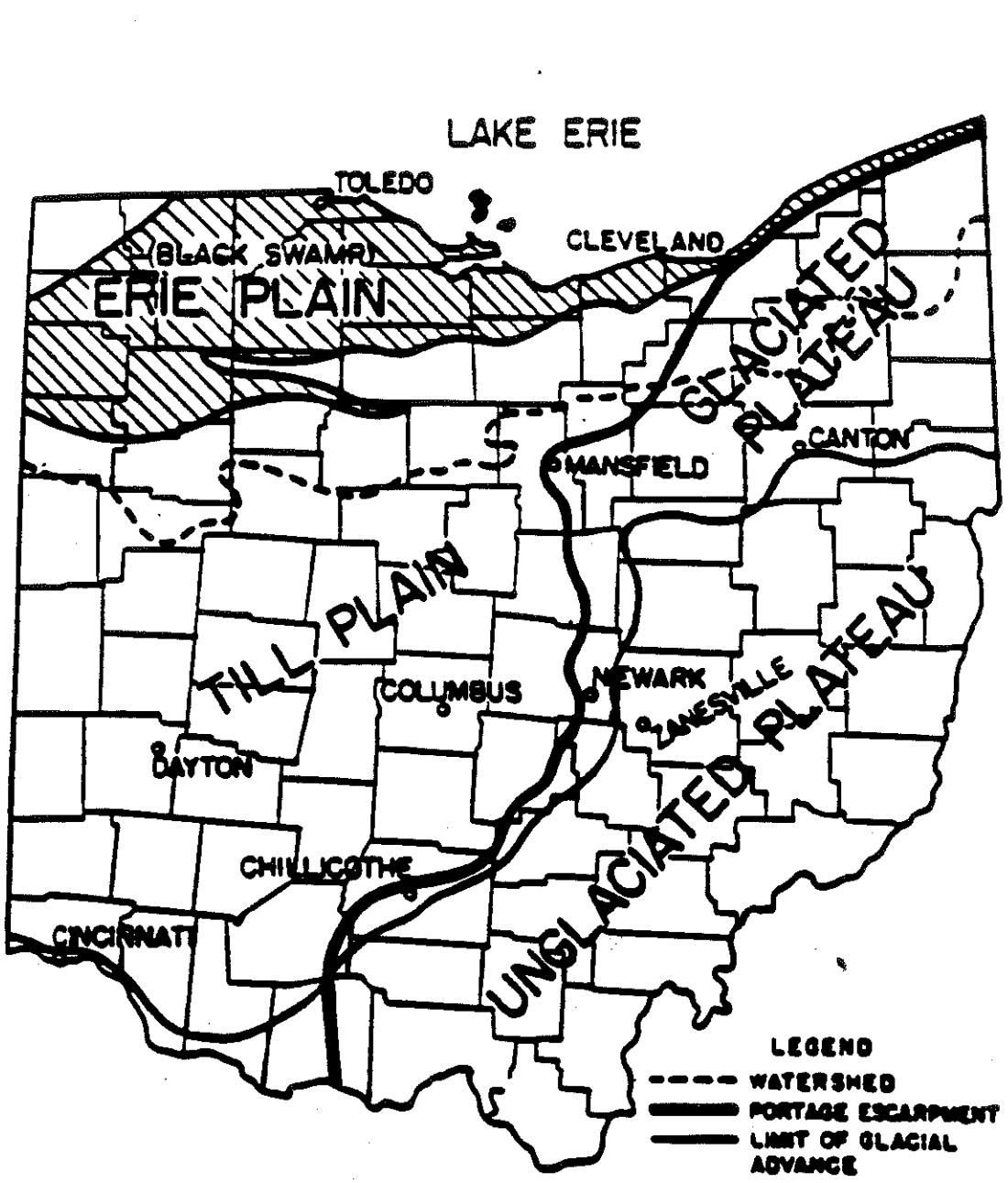
The exposed rocks of the area are of sedimentary origin and range in age from late Devonian to Pleistocene. They fall into two general classes: indurated stratified rocks of late Devonian and early Carboniferous ages and unconsolidated surficial deposits of Pleistocene age. The surficial deposits consist mainly of Pleistocene glacial and lacustrine deposits and Recent alluvium. These Pleistocene deposits form a blanket ranging in thickness from 0 to 440 feet. The indurated rocks underlie the Pleistocene deposits and crop out in the beds and gorges of streams, quarries, and other excavations. The total thickness of Paleozoic strata exposed in this area is

about 750 feet. These beds consist of shale, sandstone, and conglomerate of Late Devonian, Early Mississippian, and Early Pennsylvanian ages (Cushing et al, 1931).

Figure 4 illustrates the physiographic boundary lines in Ohio. Figure 5 illustrates the geologic features of the Cleveland area. As these figures illustrate, thicknesses of weak shale mark the surface of the Appalachian Plateau (depicted as Plateau on Figure 5) and the two lesser platforms (depicted as Till Plain and Lake Plain on Figure 5) on the slope of the Portage Escarpment. The uppermost formation is the Sharon conglomerate, of Lower Pennsylvanian age. It is the youngest exposed Paleozoic rock in this area and is the capstone formation of the plateau across northeastern Ohio. Below the Sharon conglomerate, other formations include: the Orangeville and Meadville shales of Mississippian age; the Cleveland and Bedford shales, classed by some as Upper Devonian and by others as Lower Mississippian age; and the Chagrin shale of late Upper Devonian age (Cushing et al, 1931). Exposed rocks are underlain by large thicknesses of Devonian, Silurian, and Ordovician formations, presumably of Cambrian age, resting on a floor of Precambrian crystalline rocks. Figure 6 shows the approximate thickness of each formation found in the Cleveland area (Cushing et al, 1931).

The site lies within the Lake Plain physiographic region. As Figure 7 illustrates, the Lake Plain is a wedge-shaped region of silty clay sediments that extends across the northern part of Cuyahoga County from the Lake Erie shoreline southward to the base of the Portage Escarpment. The Portage Escarpment crosses Cuyahoga County in a broad arc from northeast to southwest.

Three distinct soil units are present on the facility. These units are Urban land, Urban land-Allis complex, and the Hornell-Urban land complex. Urban land makes up the majority of the soil on the property. This unit is characterized by nearly level topography, of which more than 80 percent of the surface is covered by structures such as asphalt, concrete, buildings, and other artificial surfaces which make soil identification impractical. A small area in the northeast portion of the property is classified as Urban land-Allis complex. This unit consists of Urban and a moderately deep, nearly level and gently sloping, poorly drained Allis soil. The surface layer of the Allis soil is typically dark grayish-brown, silty loam, approximately 6 inches deep. The subsoil is grayish-brown, mottled, very firm silty clay and is approximately 27 inches deep. Undrained areas of Allis soils have a seasonally high water table near the surface in fall, winter, and spring, and during extended wet periods. Permeability is slow to very slow, available water capacity is low, and runoff is slow. The third minor soil unit, Hornell-Urban land complex, runs parallel to Euclid Avenue on the southeast boundary of the facility. The unit consists of rolling



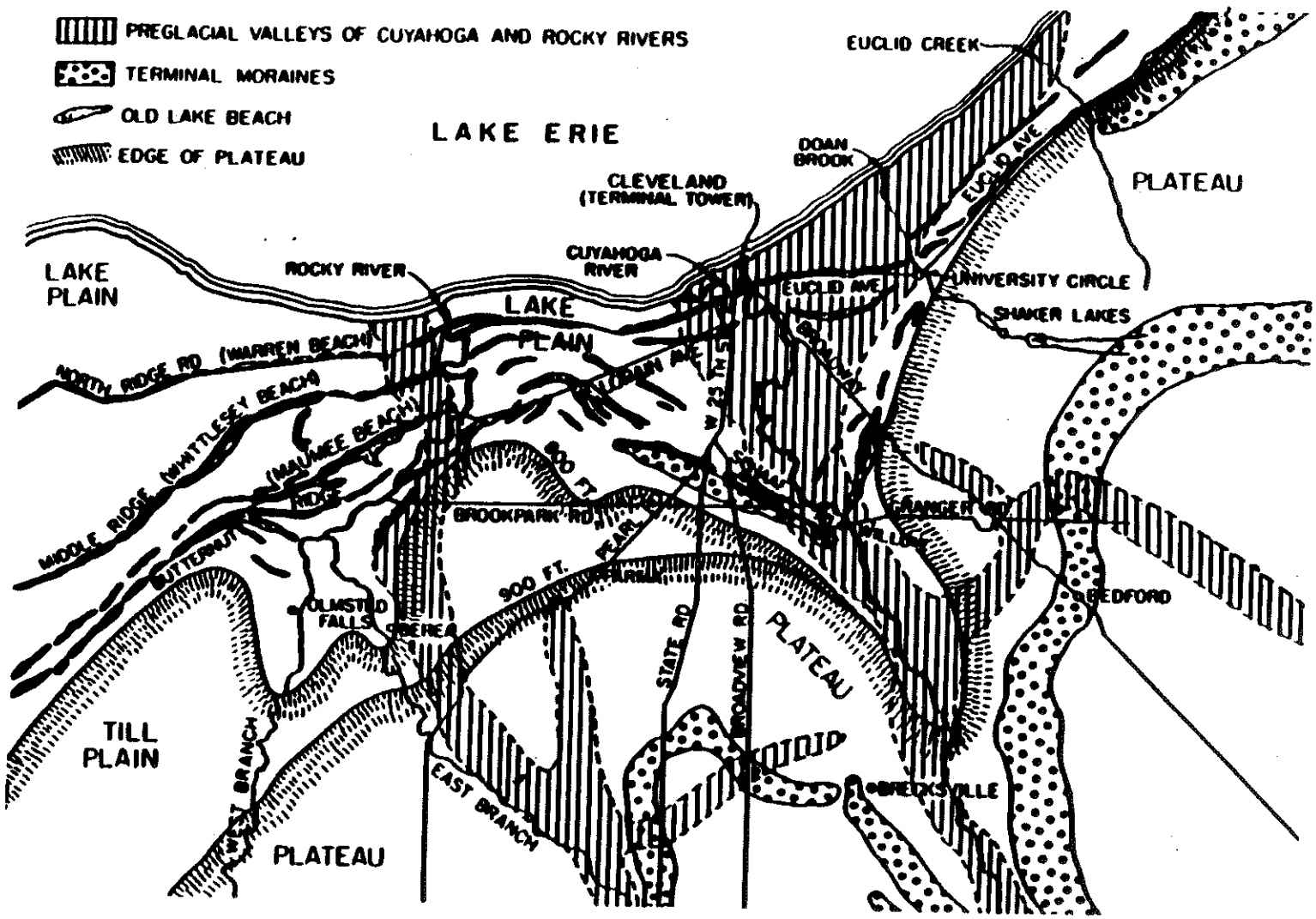
SCALE NOT AVAILABLE

SOURCE: WILLIAMS, 1940

TRW INC.
CLEVELAND, OHIO

FIGURE 4
PHYSIOGRAPHIC BOUNDARY LINES IN OHIO

ENVIRONMENTAL MANAGEMENT, INC.



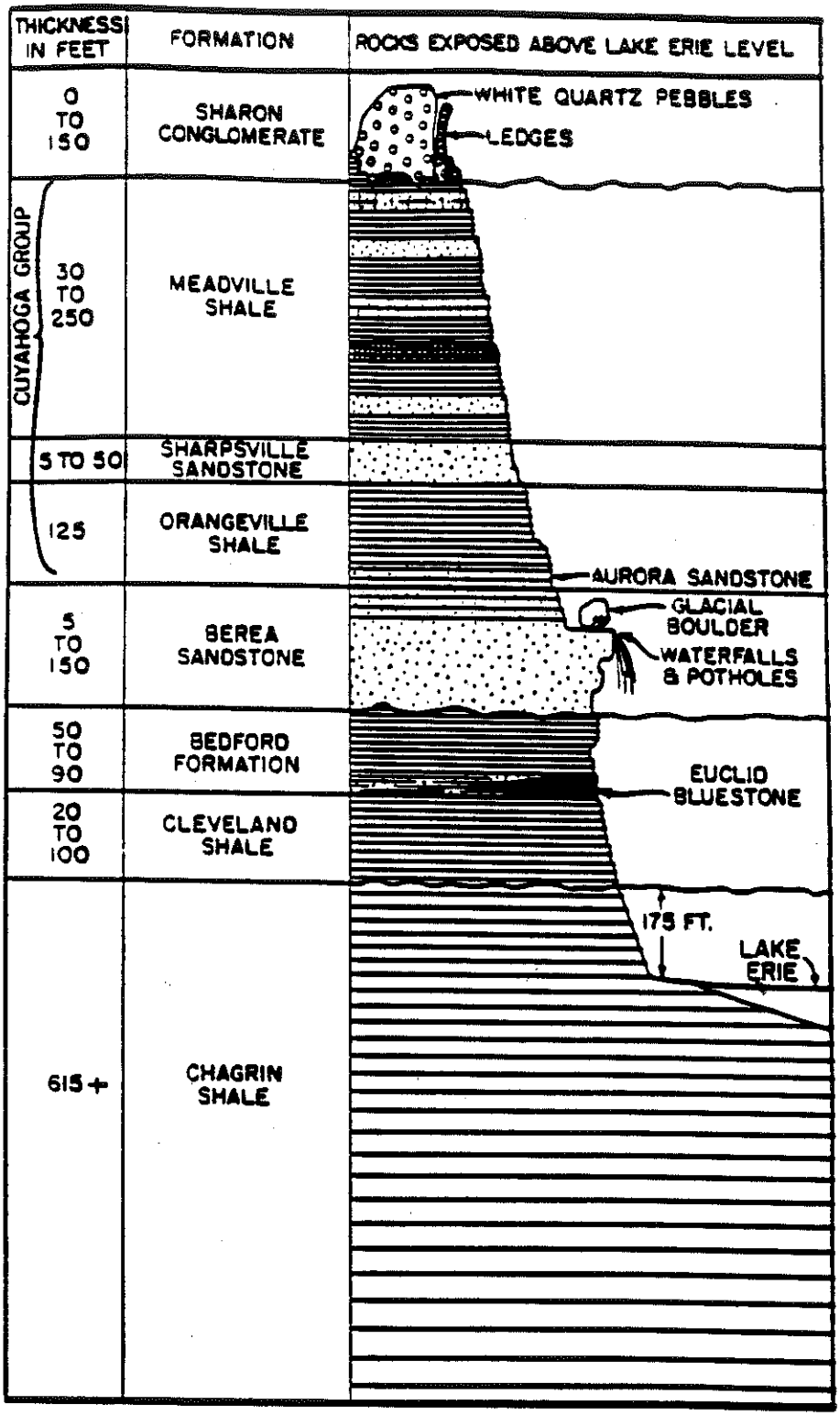
SCALE NOT AVAILABLE

SOURCE: WILLIAMS, 1940

TRW INC.
CLEVELAND, OHIO

FIGURE 5
GEOLOGICAL FEATURES
OF THE CLEVELAND AREA

ENVIRONMENTAL MANAGEMENT, INC.

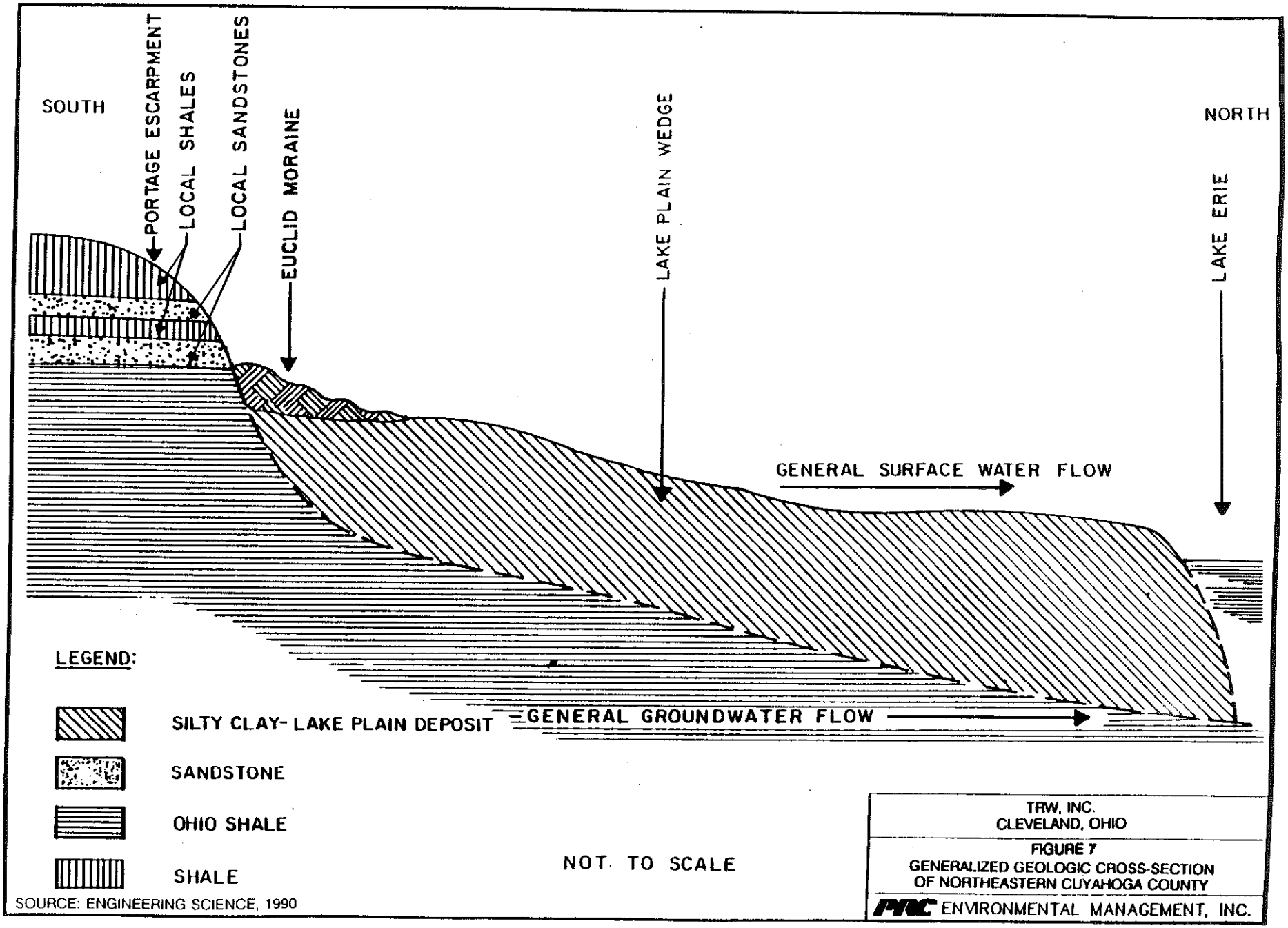


SOURCE: WILLIAMS, 1940

TRW, INC.
CLEVELAND, OHIO

FIGURE 6
REPRESENTATIVE GEOLOGIC CROSS-SECTION
OF THE CLEVELAND AREA

ENVIRONMENTAL MANAGEMENT, INC.


SOUTH
PORTAGE ESCARPMENT
LOCAL SHALES
LOCAL SANDSTONES
EUCLID MORAINE
LAKE PLAIN WEDGE
NORTH
LAKE ERIE
GENERAL SURFACE WATER FLOW
GENERAL GROUNDWATER FLOW
LEGEND:
SILTY CLAY- LAKE PLAIN DEPOSIT
SANDSTONE
OHIO SHALE
SHALE
NOT TO SCALE
SOURCE: ENGINEERING SCIENCE, 1990
TRW, INC.
CLEVELAND, OHIO
FIGURE 7
GENERALIZED GEOLOGIC CROSS-SECTION
OF NORTHEASTERN CUYAHOGA COUNTY
ENVIRONMENTAL MANAGEMENT, INC.

Hornell soil that is moderately deep and somewhat poorly drained. Typically, this soil unit has a surface layer of dark grayish-brown, silt loam, approximately 6 inches deep. Undrained areas of Hornell soils have a seasonally high water table at a depth of from 12 to 30 inches from the surface in winter and spring, and during extended wet periods (U.S. Soil Conservation Service (SCS), 1977).

2.6.4 Ground Water

Specific information about the ground water beneath the site was not available. A general description of ground water for the Cleveland area follows. The immediate area around the plant is underlain largely by Cleveland and Chagrin shales. In this area, these formations are completely unproductive of ground water for large scale use (Schmidt, Walker, 1954). Generally, however, domestic supplies of 3 to 4 gallons per minute can be developed, although such wells have to be much deeper than wells of corresponding yields in other aquifers (Ohio Department of Natural Resources [ODNR], 1952). Based on the topographic relief gradient taken from aerial photos, the ground-water flow is expected to be southeast to northwest. The ground-water flow rate is undetermined; however, it is expected to be very slow, based on the soil and features identified at or near the facility. The depth to the water table in the Lake Plain area averages approximately 4 to 7 feet below the surface, usually observed at the interface between unconsolidated sediments and bedrock (ES, 1990).

2.7 RECEPTORS

The Argo-Tech facility is located in northeast Cleveland near the town of Euclid, Ohio. Euclid with a population of 57,520 is the community most directly affected by the facility. It is estimated that approximately 500 to 1,000 people live within a 1-mile radius of the Agro-Tech facility (formerly TRW). The nearest residences are located across Euclid Avenue south of the facility, and across East 222nd Street west of the facility. Both these locations are less than 1/4 mile from the facility. North and east of the facility are light industries. The facility is completely fenced, with 24-hour security maintained. Access to the facility is controlled by guard gates (PRC, 1991).

Most of the facility is drained by a storm sewer system. Figure 2 shows the main storm water drainage line. Open surface-water ditches flow directly into the storm sewer system, which discharges into Lake Erie. No other surface-water features exist on the facility. The closest

surface-water feature is Euclid Creek, a north-flowing stream located approximately 3/4 mile southwest of the site. Regional surface drainage in the area of the facility is northwest toward Lake Erie, which is located approximately 2 miles northwest (ES, 1990). A wetland area approximately 100 feet southeast of building 49 was filled in and replaced by a paved road in 1991. There are no other sensitive environments or ecological receptors within 2 miles of the facility.

Water for residential and industrial use in this area is provided by the city of Cleveland municipal water system, which has water intakes in Lake Erie, upstream of the storm water discharge point (ES, 1990). The Ohio Department of Natural Resources indicated that one known private water well exists within a 1-mile radius of the facility. The well is drilled into a low yielding shale and is located to the south, upgradient of the facility (ES, 1990). Sixteen other wells are located within a 1- to 3-mile radius of the facility. These wells also are located upslope of the facility. The depth to ground water at the facility is approximately 4 to 7 feet below ground surface, at the bedrock and overburden interface (ES, 1990). No known ground-water wells are located downgradient of the facility. It is therefore unlikely that a release to ground water from the facility would pose a risk of human exposure.

3.0 SOLID WASTE MANAGEMENT UNITS

This section describes the 25 SWMUs identified during the PA/VSI. The information presented for each SWMU is: description of the unit, dates of operation, wastes managed, release controls, history of release, and PRC observations.

SWMU 1 **Former Building 49, Underground Storage Tank**

Unit Description: The former building 49 was located in the northeastern portion of the facility (see Figure 2). The building was located in a fenced compound and was used for torpedo testing. Torpedo testing facilities consisted of two test firing cells, a storage area for Otto fuel, and a 1,000-gallon underground wastewater separation tank. Wastewater containing liquid fuel residue and cyanide is generated by torpedo test firing. Until late 1985, the wastewater was stored in a 1,000-gallon underground steel storage tank. Liquid residues of unburned fuel were separated in the tank and hauled off site for disposal. The remaining wastewater was discharged to a runoff stream located to the northeast of the tank. Building 49 was demolished in 1989 (ES, 1990a). Photographs 1 and 2 in Attachment B depict this area.

Date of Startup: This unit was constructed and started operation in 1965.

Date of Closure: RCRA closure was certified by Engineering-Science in July 1990 (ES, 1990). OEPA approved closure certification on September 17, 1990 (TRW/Argo-Tech, 1991).

Wastes Managed: Wastes managed consisted of wastewaters containing liquid torpedo fuel residue (PDGN) and cyanide (D003) (ES, 1988).

Release Controls: Wastewaters were contained in a 1,000-gallon underground steel separation tank.

History of Release: On October 31, 1985, TRW, Inc. notified the National Response Center (NRC) of an oily sheen on a swale near building 49 (Resetar, 1991). During the spill investigation, it was discovered that wastewater resulting from the torpedo test firing had been discharged through a 1,000-gallon underground steel separation tank which was designed to remove and collect liquid residues of torpedo fuel. The separation tank overflowed and discharged through an underground pipeline into the soil and a wetland area about 100 feet south of building 49 (ES, 1988). An irregularly shaped area of approximately 300 square feet was affected. Contaminants released by the spill included torpedo fuel (Otto fuel) and cyanide. Environmental media affected by the spill included surface soils and surface water. The area was remediated as part of RCRA closure of building 49, which was completed in July, 1990 (ES, 1990). OEPA approved closure certification on September 17, 1990 (TRW/Argo-Tech, 1991).

Observations: Building 49 was demolished in December 1989 (ES, 1990). The area currently is grass-covered. No visible signs of soil staining, vegetative stress, or burnout were noted during the VSI (PRC, 1991).

SWMU 2 **Building 45, Former Hazardous Waste Drum Storage Area**

Unit Description: This unit is located in the north-central portion of the facility (see Figure 2). The unit was constructed in the 1940s as a rifle test-firing target range. The walls and floors of the building are concrete. The unit is divided into two separate areas (A and B) by a concrete wall. Area A is 315 square feet and area B is 420 square feet. The unit was used to store 55-gallon drums of hazardous wastes. The unit had a capacity of approximately 80 drums. Photographs 3 and 4 in Attachment B show this area.

Date of Startup: This unit was used for storage of hazardous waste before 1980. The actual startup date is unknown.

Date of Closure: Storage of hazardous waste ceased in 1985. RCRA closure was certified by Engineering-Science in July 1990 (ES, 1990). OEPA approved closure certification on September 17, 1990 (TRW/Argo-Tech, 1991).

Wastes Managed: Wastes managed in this unit included wastewater treatment sludge (F006) containing cyanides and metal hydroxides from electroplating operations.

Release Controls: The drums were stored indoors on a concrete floor. The floor sloped downward to the east. Metal dike plates along the eastern edge of the floor prevented leakage of hazardous materials into the water pit area. Sumps were located along the north and south walls (ES, 1988).

History of Release: No documented releases of hazardous wastes or hazardous constituents from this unit were identified during the PA/VSI.

Observations: The unit was locked at the time of the VSI. The inside of the unit was vacant. No evidence of staining or discoloration was apparent (PRC, 1991).

SWMU 3 **Dock 2-B, Former TRW Hazardous Waste Drum Storage Area**

Unit Description: This unit is located indoors in the northwest corner of building 26. The area had a wood-block floor on a concrete base and occupied approximately 8,100 square feet. About 2,100 square feet of this area were used for storage of hazardous waste. This area was enclosed by a 9-foot-high chain-link fence with a sliding gate (ES, 1988). The design capacity of the unit was 420 drums. The unit formerly stored hazardous waste in 55-gallon drums. Photographing this area was not permitted.

Date of Startup: This unit has managed waste since 1981.

Date of Closure: RCRA closure was certified by Engineering-Science in July 1990 (ES, 1990). OEPA approved closure certification on September 17, 1990 (TRW/Argo-Tech, 1991).

Wastes Managed: Wastes managed in this unit were:

Freon degreasing residue (F001)
Trichloroethylene (F001)
Tetrachloroethylene, PCE (F001)
Trichloroethane, TCE, still bottoms (F002)
MEK (F005)
Dioxane/MEK mixture (F005)
Ceramic slip (F008)
Corrosive solid (D002).

Release Controls: The unit was inside a building and was surrounded by a chain-link fence. The floor was wood over concrete.

History of Release: No documented releases of hazardous wastes or hazardous constituents from this unit were identified during the PA/VSI.

Observations: The unit was RCRA closed before the VSI. All the wood flooring has been removed. A torpedo-machining operation occupied the site during the VSI (PRC, 1991).

SWMU 4 **Satellite Hazardous Waste Drum Accumulation Areas**

Unit Description: Several satellite accumulation areas exist at the Argo-Tech facility. Each area consists of a single 55-gallon drum used to accumulate wastes generated by specific operations. When the drums are full they are transferred to either the Argo-Tech temporary hazardous waste drum storage area (SWMU 6) or the Airfoil Forging Textron hazardous waste drum storage area (SWMU 5). There are 14 satellite accumulation areas. All satellite accumulation areas are indoors. Photograph 5 in Attachment B shows this area.

Date of Startup: Unknown

Date of Closure: The units are still in operation.

Wastes Managed: Wastes managed in this unit are:

Freon degreasing residue (F001)
Trichloroethylene (F001)
Tetrachloroethylene (F001)
Trichloroethane still bottoms (F002)
Dioxane/MEK mixture (F005)
Waste paint
Waste micro strip B (methylene chloride), [F001]
Waste Turco (a toluene-based rubber coating), [F005]
Chlorinated oil (F001)
Solid waste Otto fuel (D003)
Xylene (F001)

Release Controls: The units are located indoors. Some units have dikes to act as secondary containment.

History of Release: No documented releases of hazardous wastes or hazardous constituents from these units were identified during the PA/VSI.

Observations: Each unit is located next to or near a point of waste generation. No evidence of staining was apparent during the VSI (PRC, 1991).

SWMU 5 **Airfoil Forging Textron Hazardous Waste Drum Storage Area**

Unit Description: This unit is adjacent to the former 2-B dock area in the northwest corner of building 26. The unit is indoors and measures approximately 50 by 50 feet. The floor is wood block concrete. The unit is surrounded by a 9-foot-high chain-link fence. The unit is used to store hazardous waste that is to remain in storage for fewer than 90 days. Photograph 6 in Attachment B shows this area.

Date of Startup: 1989

Date of Closure: The unit is still in operation.

Wastes Managed: Wastes managed in this unit are:

Waste paint (D001, D011)
Waste micro strip B (methylene chloride [F001])
Waste Turco (toluene-based rubber coating [F005])

Release Controls: The unit is located indoors. A 9-foot-high chain-link fence with a locked, sliding gate surrounds the area. An emergency spill kit with absorbent pads and a fire extinguisher are located nearby.

History of Release: No documented releases of hazardous wastes or hazardous constituents from this unit were identified during the PA/VSI.

Observations: No evidence of leaking was observed during the VSI. Drums were stored on wood pallets. Access to the unit was controlled by a locked, chain-link fence (PRC, 1991).

SWMU 6 **Argo-Tech Temporary Hazardous Waste Drum Storage Area**

Unit Description: This unit is located in the wastewater treatment plant in building 4, bay D15. The storage area is a concrete pad, approximately 10 by 15 feet. The floor is sloped and has grated floor drains which lead to a central sump. Wastewater collected in the sump is pumped to a holding tank and then back through the wastewater treatment process. Storage capacity is approximately 30 drums. The unit has been used as a temporary storage area since Argo-Tech closed the 2-B dock hazardous waste drum storage area. A permanent storage area near the scupper area (SWMU 22) is

scheduled to be opened by the end of 1991 (Richardson, 1991e). Photograph 7 in Attachment B shows this area.

Date of Startup: 1989

Date of Closure: The unit is still in operation.

Wastes Managed: Wastes managed in this unit include waste solvents and still bottoms.

Release Controls: The concrete floor is sloped and has grated floor drains leading to a sump. The entrance way leading to the outside has a grated drain but has no dike.

History of Release: A remedial investigation report submitted by Engineering-Science in July 1990 indicated that contamination from an unknown source was present in this area. VOCs (dichloroethene (DCE), trichloroethene (TCE), and vinyl chloride) were detected in one monitoring well in the shallow subsurface adjacent to the plating area in building 4. Levels of arsenic, chromium, and lead above the site average were detected in one monitoring well located just northeast of this unit. Soil borings also detected VOCs (TCE, DCE, ethyl benzene, and xylene) in the soil. Cadmium, chromium, and lead were detected in soil borings at levels above the site average. Site averages for contaminants in ground water and soil were determined by Engineering-Science and are shown in Appendix D. One soil sample contained levels of lead above the extraction procedure (EP) toxicity threshold level of 100 mg/kg. Cyanide in the soils ranged from 0.79 mg/kg to 0.25 mg/kg. Soil gas samples of the plating sump area detected quantities of TCE, trichloroethane (TCA), tetrachloroethene (PCE), and vinyl chloride (ES, 1990).

Observations: The storage area appeared clean. Drums were stacked on wood pallets at the time of the VSI (PRC, 1991).

SWMU 7 **Cyanide Afterburner**

Unit Description: This unit is located just northwest of building 33A. The unit is connected to the torpedo test engines that burn Otto fuel. Torpedo testing generates both liquid and gaseous waste streams that contain cyanide. The gas is collected and enters the afterburner, which burns the gas at 1400°F and breaks the cyanide into CO_2 and N_2. The unit does have an air permit (No. 1318207468-P030) issued by OEPA under indefinite registration status. The permit establishes an emission limit for cyanide of 4 mg/m^3. Photograph 8 in Attachment B shows this area.

Date of Startup: The unit was installed in 1987.

Date of Closure: The unit is still in operation.

Wastes Managed: Cyanide wastes generated from torpedo test firing using Otto fuel are managed in this unit.

Release Controls: A temperature probe monitors the temperature of the afterburner to assure complete combustion of the cyanide into CO_2 and N_2.

History of Release: No documented releases of hazardous wastes or hazardous constituents from this unit were identified during the PA/VSI.

Observations: The unit appeared to be in good condition during the VSI (PRC, 1991).

SWMU 8 **Former Concrete Block Filter Area**

Unit Description: This unit formerly was used by TRW as part of its wastewater treatment system. The unit was located east of building 4. The unit consisted of a filter screen and dewatering lagoon designed to remove sludge from wastewaters generated at the facility. The filtrate was treated in the former wastewater treatment plant in building 4. Sludges were dewatered here before the filter press was installed in 1984. Photograph 9 in Attachment B shows this area.

Date of Startup: 1969

Date of Closure: The unit ceased operation in 1984.

Wastes Managed: Waste managed in this unit was electroplating and metal finishing wastewater sludge (F006).

Release Controls: The concrete block walls and floor served as containment for the wastewater and sludge.

History of Release: A remedial investigation report submitted by Engineering-Science in July 1990 indicated that contamination from an unknown source was present in this area. VOCs (1,1,1-TCA; 1,1-DCE; 1,1-dichloroethane [DCA]; and tetrachloroethylene) were detected at concentrations of 100 parts per billion (ppb), 15 ppb, 13 ppb, and 7 ppb, respectively, in a monitoring well in this area. Levels above the site average of arsenic, chromium, and lead, at concentrations of 58 ppb, 477 ppb, and 258 ppb, respectively, also were detected in a monitoring well southeast of this unit. No VOCs, BTEX, or PCBs were detected in soil borings taken from this area. No metals at levels above the site and regional averages were not detected in soil borings. Soil gas sampling detected quantities of benzene, TCE, TCA, PCE, and vinyl chloride.

Observations: The unit was partially dismantled during the VSI. The area to the east of the unit was a grass field, and building 4 is to the west (PRC, 1991).

SWMU 9 **Chip Dock Area**

Unit Description: This unit is located outside near the central portion of the site, east of building 8 and northeast of buildings 29 and 35. The area measures approximately 70 by 100 feet and has an asphalt surface laid on concrete. The unit has several dumpsters in which scrap metal and metal cuttings are

stored before they are shipped off site for reclamation. Grated trench drains surround the perimeter of the unit and drain into a oil/water separator tank located under the chip dock area. Photographs 10 and 11 in Attachment B depict this unit.

Date of Startup: Unknown

Date of Closure: The unit is still in operation.

Wastes Managed: Metal scraps and cuttings coated with cutting oils are managed in this unit.

Release Controls: The metal scraps are stored in dumpsters on a asphalt floor laid over concrete. A trench drain surrounds the perimeter of the unit and drains into a oil/water separator tank located under the chip dock area.

History of Release: A remedial investigation report submitted by Engineering-Science in July 1990 indicated that contamination from an unknown source was present in this area. VOCs (TCE, TCA, PCE, DCE, dichloroethane [DCA], and vinyl chloride) at concentrations ranging from 10,000 ppb to 130,000 ppb were detected in monitoring wells at 14 to 15 feet below grade. TCE at a concentration of 1,300 ppb also was detected in wells at depths of 30 feet, while a concentration of 12 ppb was detected at 50 feet. Toluene was detected at a concentration of 81 ppb. Lead chromium, arsenic, and mercury were detected in ground-water monitoring wells. VOCs (TCE, TCA, DCE, DCA, PCE) and PCBs were also detected in soil borings. Arsenic concentrations in the soil ranged from 6.5 mg/kg to 26 mg/kg. Cadmium concentrations ranged from 11 mg/kg to 210 mg/kg. Lead concentrations ranged from 6.2 mg/kg to 130 mg/kg. All values were below the EP toxicity threshold level except for one chromium and one lead sample (ES, 1990).

Observations: The floor of the unit looked very oily and there were numerous metal fillings embedded in the asphalt at the time of the VSI (PRC, 1991).

SWMU 10 **Trichloroethylene Aboveground Storage Tank**

Unit Description: This unit is east of building 15 and west of building 32. The unit consisted of a 500-gallon aboveground storage tank in a concrete-vaulted area. The tank contains spent TCE, which is fed to the solvent recovery still.

Date of Startup: Unknown

Date of Closure: The unit is still in operation.

Wastes Managed: Waste managed at this unit is TCE.

Release Controls: The tank is in an aboveground, vaulted concrete area. The walls and floor are concrete. The ceiling has grates.

History of Release: A remedial investigation report submitted by Engineering-Science in July 1990 indicated the presence in this area of contamination from an unknown

source. VOCs (TCA, PCE, DCE, and DCA) were detected in ground-water monitoring wells near the area. Lead, chromium, and arsenic at concentrations above the site average were detected in monitoring wells. Soil borings did not detect any contaminants. Soil gas samples indicated the presence of TCE, TCA, PCE, benzene, and vinyl chloride (ES, 1990).

Observations: The unit was not observed during the VSI.

SWMU 11 **Argo-Tech Wastewater Treatment Plant**

Unit Description: This unit is located in building 4. The unit has a concrete floor and occupies an area measuring 320 by 320 feet. In the floor of the unit, there are trench drains that lead to a sump. The unit treats wastewaters generated by the various tenants at the facility. The unit consists of two 750-gallon cyanide destruction tanks, two 2,000-gallon chrome reduction tanks, and two 9,000-gallon chemical precipitation/neutralization tanks. A flocculation and lamella clarifier removes sludge, which is sent to a filter press for dewatering. This wastewater treatment sludge (F006) is stored in a dumpster (SWMU 14) outside building 4 before it is taken off site for disposal. The treated water first is discharged to permitted Outfall 602, then to permitted Outfall 001, and finally to the storm sewer at East 222nd Street. (There were three outfalls [Outfalls 001, 601, and 602]) listed in the National Pollutant Discharge Elimination System ([NPDES]) permit application, but only two ([Outfalls 001 and 602]) are operational ([TRW, 1989]). Storm water from East 222nd Street goes to Lake Erie at two separate discharge locations (PRC, 1991). Treated wastewater is discharged at a rate of approximately 0.354 million gallons per day through NPDES Outfall 602 to a storm sewer (Argo-Tech, 1989). Photograph 7 in Attachment B depicts this unit.

Date of Startup: The unit began operation in 1968 and was replaced by the present system in 1986.

Date of Closure: The unit is still in operation.

Wastes Managed: The unit treats wastewaters from the various tenants at the facility. These wastewaters include acid and alkaline cleaning solutions; chrome, copper, nickel, and black-oxide plating solutions; anodizing solutions; cyanide stripping solutions; and nitric-hydrofluoric etching solutions.

Release Controls: The floor is sloped with grated floor drains leading to a sump. The entrance way leading to the outside has a grated drain but does not have a dike.

History of Release: A remedial investigation report submitted by Engineering-Science in July 1990 indicated that contamination from an unidentified source was present in this area. VOCs (cis-1,2-DCE; TCE; trans-1,2-DCE; 1,1-DCE; and vinyl chloride at concentrations of 1400 ppb, 370 ppb, 58 ppb, 13 ppb, and 260 ppb, respectively) were detected in one monitoring well in the shallow subsurface adjacent to the plating area in building 4. Levels of arsenic, chromium, and lead in concentrations above the site average were detected

in one monitoring well located just northeast of this unit. Concentrations of arsenic, chromium, and lead in that well were 58 ppb, 477 ppb, and 258 ppb, respectively. Soil borings also detected VOCs (TCE, DCE, ethylbenzene, and xylene) in the soil. TCE concentration ranged from 0.171 mg/kg to 23.5 mg/kg. Cis-1,2-DCE concentration ranged from 0.033 mg/kg to 4.43 mg/kg. Ethylbenzene and xylene were detected at concentrations of 0.012 mg/kg and 0.114 mg/kg, respectively. Cadmium, chromium, and lead were detected in soil borings at concentration levels above the site average. Cadmium levels ranged from 0.85 mg/kg to 17 mg/kg. Chromium levels ranged from 7.9 mg/kg to 53 mg/kg. Lead concentrations ranged from 4 mg/kg to 150 mg/kg. One soil sample contained levels of lead above the EP toxicity threshold level of 100 mg/kg. Cyanide in the soils ranged from 0.79 mg/kg to 25 mg/kg. Soil gas samples of the plating sump area detected quantities of TCE, TCA, PCE, and vinyl chloride (ES, 1990).

Observations: The unit appeared to be well operated and maintained. All tanks and associated equipment were in good condition (PRC, 1991).

SWMU 12 **Plating Sumps**

Unit Description: This area is in the southeast corner of building 4. The unit consists of sumps designed to collect waste plating water that might result from spills or leaks in the plating tanks.

Date of Startup: Unknown

Date of Closure: The unit is still in operation.

Wastes Managed: The unit manages plating wastewaters from the plating lines at the facility. These lines include chrome, copper, nickel, and black-oxide plating solutions; anodizing solutions; cyanide stripping solutions; and nitric-hydrofluoric etching solutions.

Release Controls: The sumps are concrete. All liquid collected in the sumps is pumped to the Argo-Tech wastewater treatment plant. The building acts as secondary containment.

History of Release: A remedial investigation report submitted by Engineering-Science in July 1990 indicated that contamination from an unknown source was present in this area. VOCs (cis-1,2-DCE; TCE; trans-1,2-DCE, 1,1-DCE; and vinyl chloride at concentrations of 1400 ppb, 370 ppb, 58 ppb, 13 ppb, and 260 ppb, respectively) were detected in one monitoring well in the shallow subsurface adjacent to the plating area in building 4. Levels of arsenic, chromium, and lead at concentrations above the site average were detected in one monitoring well located just northeast of this unit. Concentrations of arsenic, chromium, and lead in this well were 58 ppb, 477 ppb, and 258 ppb, respectively. Soil borings also detected VOCs (TCE; cis-1,2-DCE; ethylbenzene; and xylene) in the soil. TCE concentrations ranged from 0.171 mg/kg to 23.5 mg/kg. Cis-1,2-DCE concentrations ranged from 0.033 mg/kg to 4.43 mg/kg. Ethylbenzene and xylene were detected at

concentrations of 0.012 mg/kg and 0.114 mg/kg, respectively. Cadmium, chromium, and lead were detected in soil borings at levels above the site average. Concentrations of cadmium ranged from 0.85 mg/kg to 17 mg/kg. Chromium concentrations ranged from 7.9 mg/kg to 53 mg/kg. Lead concentrations ranged from 4 mg/kg to 150 mg/kg. One soil sample contained levels of lead above the EP toxicity threshold level of 100 mg/kg. Cyanide in the soils ranged from 0.79 mg/kg to 25 mg/kg. Soil gas samples of the plating sump area detected quantities of TCE, TCA, PCE, and vinyl chloride (ES, 1990).

Observations: The unit appeared to be in good condition during the VSI (PRC, 1991).

SWMU 13 **Bulk Waste Otto Fuel Storage**

Unit Description: This unit is located in building 30. The unit consists of three 5,000-gallon aboveground storage tanks. The tanks store waste Otto fuel generated by torpedo testing. The tanks are located in a room that has cinderblock walls and a concrete floor. The floor has drains that are connected to the tanks, thus creating a closed system for spill control. The waste Otto fuel is not treated at the Argo-Tech facility; it is shipped to the U.S. Navy for disposal. Photograph 12 depicts this unit.

Date of Startup: 1987

Date of Closure: The unit is still in operation.

Wastes Managed: The unit manages waste Otto fuel and Otto fuel wastewaters.

Release Controls: The unit is located in a room that has cinderblock walls and a concrete floor. Floor drains in the room are connected to the holding tanks, thus creating a closed-loop spill-control system.

History of Release: No documented releases of hazardous wastes or hazardous constituents from this unit were identified during the PA/VSI.

Observations: The unit appeared to be in good condition at the time of the VSI (PRC, 1991).

SWMU 14 **Argo-Tech Electroplating Filter Cake Dumpster**

Unit Description: This unit is located east of building 4. It consists of a dumpster on a concrete roadway. The filter cake is stored in this dumpster and picked up by Envirite Corporation, a hazardous waste disposal firm, for disposal off site.

Date of Startup: Unknown

Date of Closure: The unit is still in operation.

Wastes Managed: The unit manages electroplating wastewater treatment sludge (F006).

Release Controls: The unit is a dumpster on a concrete roadway. No secondary containment exists.

History of Release: A remedial investigation report submitted by Engineering-Science in July 1990 indicated that contamination from an unidentified source was present in this area. VOCs (cis-1,2-DCE; TCE; trans-1,2-DCE; 1,1-DCE; and vinyl chloride at concentrations of 1400 ppb, 370 ppb, 58 ppb, 13 ppb, and 260 ppb, respectively) were detected in one monitoring well in the shallow subsurface adjacent to the plating area in building 4. Levels of arsenic, chromium, and lead at concentrations above the site average were detected in one monitoring well located just northeast of this unit. Concentrations of arsenic, chromium, and lead in this well were 58 ppb, 477 ppb, and 258 ppb, respectively. Soil borings also detected VOCs (TCE, DCE, ethylbenzene, and xylene) in the soil. TCE concentrations ranged from 0.171 mg/kg to 23.5 mg/kg. Cis-1,2-DCE concentrations ranged from 0.033 mg/kg to 4.43 mg/kg. Ethylbenzene and xylene were detected at concentrations of 0.012 mg/kg and 0.114 mg/kg, respectively. Cadmium, chromium, and lead were detected in soil borings at concentration levels above the site average. Cadmium concentrations ranged from 0.85 mg/kg to 17 mg/kg. Chromium concentrations ranged from 7.9 mg/kg to 53 mg/kg. Lead concentrations ranged from 4 mg/kg to 150 mg/kg. One soil sample contained levels of lead above the EP toxicity threshold level of 100 mg/kg. Concentrations of cyanide in the soils ranged from 0.79 mg/kg o 25 mg/kg. Soil gas samples of the plating sump area detected quantities of TCE, TCA, PCE, and vinyl chloride (ES, 1990).

Observations: The unit was not observed during the VSI.

SWMU 15 **Textron Kolene Wastewater Treatment System**

Unit Description: This unit is located in building 3. The unit treats wastewaters generated by the Kolene metal-finishing operation run by Textron. The unit consists of a metal precipitation/reduction process and an acid/base neutralization process that treat the wastewater. A filter press dewaters the wastewater. Dewatered filter cake is stored in a dumpster (SWMU 16) located east of building 4. Waste Kolene is stored in 55-gallon drums in 2-B dock (SWMU 5) before it is shipped off site for disposal. The Textron wastewater treatment plant discharges approximately 15,000 to 20,000 gallons per day of treated water to the Euclid sanitary sewer system.

Date of Startup: 1986

Date of Closure: The unit is still in operation.

Wastes Managed: The unit manages Kolene and acid wastewater.

Release Controls: Unknown

History of Release: No documented releases of hazardous wastes or hazardous constituents from this unit were identified during the PA/VSI.

Observations: The unit was not observed during the VSI.

SWMU 16 **Textron Filter Cake Dumpster**

Unit Description: This unit is located east of building 4. It consists of a dumpster on a concrete roadway.

Date of Startup: Unknown

Date of Closure: The unit is still in operation.

Wastes Managed: The unit manages metal finishing filter cake (F006).

Release Controls: The unit is a dumpster on a concrete roadway. There is no secondary containment.

History of Release: A remedial investigation report submitted by Engineering-Science in July 1990 indicated that contamination from an unidentified source was present in this area. VOCs (cis-1,2-DCE; TCE; trans-1,2-DCE; 1,1-DCE, and vinyl chloride at concentrations of 1400 ppb, 370 ppb, 58 ppb, 13 ppb, and 260 ppb, respectively) were detected in one monitoring well in the shallow subsurface adjacent to the plating area in building 4. Levels of arsenic, chromium, and lead at concentrations above the site average were detected in one monitoring well located just northeast of this unit. Concentrations of arsenic, chromium, and lead in this well were 58 ppb, 477 ppb, and 258 ppb, respectively. Soil borings also detected VOCs (TCE, DCE, ethylbenzene, and xylene) in the soil. TCE concentrations ranged from 0.171 mg/kg to 23.5 mg/kg. Cis-1,2-DCE concentrations ranged from 0.033 mg/kg to 4.43 mg/kg. Ethylbenzene and xylene were detected at concentrations of 0.012 mg/kg and 0.114 mg/kg, respectively. Cadmium, chromium, and lead were detected in soil borings at concentration levels above the site average. Cadmium concentrations ranged from 0.85 mg/kg to 17 mg/kg. Chromium concentrations ranged from 7.9 mg/kg to 53 mg/kg. Lead concentrations ranged from 4 mg/kg to 150 mg/kg. One soil sample contained levels of lead above the EP toxicity threshold level of 100 mg/kg. Cyanide concentrations in the soils ranged from 0.79 mg/kg o 25 mg/kg. Soil gas samples of the plating sump area detected quantities of TCE, TCA, PCE, and vinyl chloride (ES, 1990).

Observations: The unit was not observed during the VSI.

SWMU 17 **JP-4 Underground Storage Tank Farm**

Unit Description: This unit is located in the central portion of the site, between buildings 33 and 31. This unit consists of four underground storage tanks. There are two 10,000-gallon virgin fuel tanks, one 20,000-gallon dump tank, and one 10,000-gallon oil/water separator tank. Although there are both product and waste storage tanks in this unit, the entire tank farm was listed as one SWMU because reported releases could not be attributed to any single tank.

Several UST farms (SWMUs 18 through 21) previously were located near this area. Photograph 13 depicts this unit.

Date of Startup: Unknown

Date of Closure: The unit is still in operation.

Wastes Managed: The unit manages JP-4 aviation fuel.

Release Controls: Unknown

History of Release: A remedial investigation report submitted by Engineering-Science in July 1990 indicated that contamination was present in the area. The source of the contamination most likely was one or more of the USTs; however, the exact source is unknown. VOCs (BTEX) and PCBs have been detected in monitoring wells in this area. The maximum concentration detected during the most recent sampling (spring 1989) was 310 ppb benzene and 4100 ppb PCB-1248. Free-floating hydrocarbon layers up to three inches thick have been detected in three ground-water monitoring wells in this area. Concentrations of lead, chromium, and arsenic at levels above the site average were detected in one monitoring well. Concentrations of 124 ppb, 51 ppb, and 60 ppb were reported for lead, chromium, and arsenic, respectively. VOCs (xylene, and unidentified hydrocarbons) and PCBs were detected in soil borings taken from this area. The maximum concentration detected was 14 mg/kg of xylene, 100 mg/kg of unidentified hydrocarbons, and 90 mg/kg of PCBs. Lead levels in the soil ranged from 8.9 mg/kg to 50 mg/kg and were above the site average. Soil gas samples detected the presence of TCA, TCE, PCE, benzene, and vinyl chloride (ES, 1990).

Observations: The unit was covered with grass and gravel at the time of the VSI (PRC, 1991).

SWMU 18 **Former Underground Storage Tank Farm 1**

Unit Description: This area was located north of building 32. The area had 14 USTs, ranging in volume from 2,000 gallons to 5,000 gallons and containing virgin and spent aviation fuel. Although there were both virgin product and waste storage tanks in this unit, the entire tank farm was listed as one SWMU because reported releases could not be attributed to one tank.

Date of Startup: Unknown

Date of Closure: All tanks were removed at an unknown date (Richardson, 1991e).

Wastes Managed: The unit managed JP-4 aviation fuel.

Release Controls: Unknown

History of Release: A remedial investigation report submitted by Engineering-Science in July 1990 indicated that VOCs (BTEX) at a concentration of 310 ppb were

detected in a monitoring well near this area. Soil borings did not detect VOCs in the soil. Arsenic, cadmium, chromium, mercury, and lead levels were reported to be below or at the site average (Engineering-Science, 1990).

Observations: The unit was covered with grass at the time of the VSI (PRC, 1991).

SWMU 19 **Former Underground Storage Tank Farm 2**

Unit Description: This area was located between buildings 33 and 31 just southwest of the current JP-4 tank farm area (SWMU 17). There were five tanks, ranging in volume from 10,000 gallons to 20,000 gallons and containing virgin and spent fuels. Although there were both virgin product and waste storage tanks in this unit, the whole tank farm was listed as one SWMU because reported releases could not be attributed to any single tank.

Date of Startup: Unknown

Date of Closure: All tanks were removed in 1965 (Richardson, 1991e).

Wastes Managed: The unit managed JP-4 aviation fuel.

Release Controls: Unknown

History of Release: A remedial investigation report submitted by Engineering-Science in July 1990 indicated free-floating hydrocarbon layers up to 3 inches thick have been detected in three ground water monitoring wells in this area. VOCs (BTEX) and PCBs have been detected in monitoring wells in this area as well. The maximum concentration detected during the most recent sampling episode (spring 1989) was 310 ppb benzene and 4100 ppb PCB-1248. Chromium levels in the soil to the north were above the site and regional values at a concentration of 33 mg/kg. Soil gas samples detected the presence of TCA, TCE, PCE, and vinyl chloride in an area north of building 31 near building 30A and 33 (ES, 1990).

Observations: The unit was covered with grass and gravel at the time of the VSI (PRC, 1991).

SWMU 20 **Former Underground Storage Tank Farm 3**

Unit Description: This area was located east of building 31. The area had 7 tanks containing various virgin and spent fuels and ranging in size from 2,000 to 5,000 gallons. Although there were both virgin product and waste storage tanks in this unit, the whole tank farm was listed as one SWMU because reported releases could not be attributed to any single tank.

Date of Startup: Unknown

Date of Closure: All tanks were removed in 1980 (Richardson, 1991e).

Wastes Managed: The unit managed JP-4 aviation fuel.

Release Controls: Unknown

History of Release: A remedial investigation report submitted by Engineering-Science in July 1990 indicated that VOCs (BTEX) and PCBs have been detected in monitoring wells in this area. The maximum concentration detected during the most recent sampling episode (spring 1989) was 310 ppb benzene and 4100 ppb PCB-1248. Free-floating hydrocarbon layers up to 3 inches thick have been detected in three ground-water monitoring wells in this area. Concentrations of lead, chromium, and arsenic at levels above the site average were detected in one monitoring well also. Concentrations of 124 ppb, 51 ppb, and 60 ppb, respectively, were reported for lead, chromium, and arsenic. VOCs (xylene and unidentified hydrocarbons) and PCBs were detected in soil borings taken from this area. The maximum concentrations were 14 mg/kg of xylene, 100 mg/kg of unidentified hydrocarbons, and 90 mg/kg of PCBs. Lead levels in the soil ranged from 8.9 mg/kg to 50 mg/kg and were above the site and regional values. Soil gas samples detected the presence of TCA, TCE, PCE, benzene, and vinyl chloride (ES, 1990).

Observations: The unit was covered with grass and gravel at the time of the VSI (PRC, 1991).

SWMU 21 **Former Underground Storage Tank Farm 4**

Unit Description: This area was located just off the northwest corner of building 30. The area had 8 USTs containing various fuels and ranging in volume from 500 to 3,000 gallons. Although there were both virgin product and waste storage tanks in this unit, the entire tank farm was listed as one SWMU because reported releases could not be attributed to any single tank.

Date of Startup: Unknown

Date of Closure: At least 6 tanks were removed at an unknown date. It is not known whether the remaining 2 tanks have been removed (Richardson, 1991e).

Wastes Managed: The unit managed JP-4 aviation fuel.

Release Controls: Unknown

History of Release: A remedial investigation report submitted by Engineering-Science in July 1990 indicated that ground-water monitoring wells near the area detected the presence of vinyl chloride at a concentration of 11 ppb. Ground-water monitoring wells also detected the presence of lead, chromium, mercury, and arsenic at levels above the site average. Concentrations of 98 ppb, 230 ppb, 0.5 ppb, and 90 ppb, respectively, were reported for lead, chromium, mercury, and arsenic. Soil borings detected VOCs (TCE, TCA, DCE, PCE, and BTEX) in the soil to the northwest of these tanks. Arsenic, chromium, lead, and mercury levels in the soil were above the site and regional values. EP toxicity testing from one soil sample yielded 18 ppm of leachable lead.

Soil gas samples detected the presence of TCA, TCE, DCE, benzene, and vinyl chloride near the monitoring wells in this area (ES, 1990).

Observations: The unit was not observed during the VSI.

SWMU 22 **Scupper Area**

Unit Description: This area is located north of building 26. It consists of an enclosed concrete pad measuring approximately 15 by 30 feet. The unit is used to store combustible liquids and waste oils in 55-gallon drums. The pad has grating in front covering a sump and a scupper in back. A scupper is a fixture like a porthole designed to skim flammable liquids off water accumulated during firefighting operations. There is no drain in the unit.

Date of Startup: Unknown

Date of Closure: The unit is still in operation.

Wastes Managed: The unit manages waste oils and flammable liquids.

Release Controls: The pad has grating in front and a scupper at the back end. There is no drain in the unit.

History of Release: A remedial investigation report submitted by Engineering-Science in July 1990 indicated the presence of VOCs (TCE; 1,2-DCE; and total petroleum hydrocarbons [TPH] in soil borings taken from this area. TCE concentrations ranged from 60 mg/kg to concentrations below detection limit. Concentrations of 1,2-DCE ranged from 5 mg/kg to below the detection limit. TPH concentrations ranged from 58 mg/kg to 26,000 mg/kg (ES, 1990).

Observations: The unit was not inspected at the time of the VSI.

SWMU 23 **Waste Otto Fuel Drum Storage Area**

Unit Description: This unit is located in building 56. The unit stores both virgin and spent Otto fuel and wastes associated with torpedo testing (that is, protective clothing). The wastes are stored in 55-gallon drums on a concrete floor. Storage capacity for the unit is approximately 200 drums. Typically, between 5 and 10 drums store waste, and the rest store virgin Otto fuel.

Date of Startup: Unknown

Date of Closure: The unit is still in operation.

Wastes Managed: The unit manages waste Otto fuel and protective clothing worn during torpedo testing.

Release Controls: The wastes are stored in 55-gallon drums inside a building. The building acts as secondary containment.

History of Release: No documented releases of hazardous wastes or hazardous constituents from this unit were identified during the PA/VSI.

Observations: The unit was not observed during the VSI.

SWMU 24 **Bay k-7 Sump**

Unit Description: This unit is located on the west-central portion of the facility west of building 3. It consists of a storm drain sump.

Date of Startup: Unknown

Date of Closure: The unit is still in operation.

Wastes Managed: The unit manages manufacturing process wastes.

Release Controls: Unknown

History of Release: A grab sample in the sump obtained by Engineering-Science indicated relatively high levels of semivolatiles (ranging from 3,800 mg/kg to 58,000 mg/kg) and PCBs at 140 mg/kg. Low concentrations of VOCs (ranging from 1 ppb to 8 ppb) and PCBs were detected in one water sample from the sump (ES, 1990).

Observations: The unit was not observed during the VSI.

SWMU 25 **Building 24 and Associated Drain Lines**

Unit Description: This area is located in the north-central portion of the facility, near buildings 24, 41, 45, and 26. Past operations in building 24 included mercury-cast testing. Currently, there are 2 aboveground JP-5 fuel storage tanks near the exterior of building 24. Photograph 14 shows this area.

Date of Startup: Unknown

Date of Closure: Mercury casting ceased in the 1950s (Richardson, 1991e).

Wastes Managed: The unit managed mercury and other unknown wastes.

Release Controls: Unknown

History of Release: A remedial investigation report submitted by Engineering-Science in July 1990 indicated that levels of mercury above the site average were detected in monitoring wells in this area. No VOCs, BTEX, or PCBs were detected in monitoring wells in the area. Soil borings indicated the presence of VOCs (TCE; cis-1,2-DCE; PCE; 1,1,2,2-PCA; TPH; and toluene) in the soil. TCE concentrations ranged from 0.11 mg/kg to 14.5 mg/kg. Cis-1,2-DCE and PCE were detected at concentrations of 0.484 mg/kg and 0.021

mg/kg, respectively. 1,1,2,2-PCA and toluene were detected at concentrations of 0.6 mg/kg and 0.2 mg/kg, respectively. TPH concentrations ranged from 49 mg/kg to 780 mg/kg. Arsenic, cadmium, chromium, lead, and mercury were detected at levels above the site average. Arsenic concentrations ranged from 15 to 53 mg/kg. Cadmium was detected at a concentration of 3 mg/kg. Chromium concentrations ranged from 10 to 110 mg/kg. Lead concentrations ranged from 8 mg/kg to 113 mg/kg. Mercury concentrations ranged from 0.2 mg/kg to 6.6 mg/kg. Some soil samples lead and mercury concentrations above the EP toxicity threshold levels (100 mg/kg and 4 mg/kg, respectively). However, EP toxicity testing on these samples yielded no detectable quantities of leachable lead or mercury. Samples from drain lines in building 24 detected lead, mercury, cadmium, and chromium at levels above the site average (ES, 1990).

Observations: The inside of this unit was not observed during the VSI.

4.0 AREAS OF CONCERN

PRC identified 8 AOCs during the PA/VSI. These are discussed below.

AOC 1 **Railroad Spur/Lobby 3**

This AOC is located north of building 15 and northeast of buildings 19 and 24. Most of the area currently is grass-covered. In the 1950s, this area was used to make mercury castings or moldings (mer-cast). The process was similar to the lost-wax method for making molds. A 15,000-gallon aboveground storage tank was located south of building 19. The tank contained TCA, which was used as a refrigerant in the mer-cast process. A remedial investigation report submitted by Engineering-Science in July 1990 indicated that VOCs (TCE; trans-1,2-DCE; and vinyl chloride) were detected at concentrations of 5000 ppb, 1600 ppb, and 290 ppb, respectively in ground-water monitoring wells in this area. Monitoring wells also detected the presence of lead, arsenic, chromium, and mercury at levels above the site average. Lead concentrations ranged from 98 to 114 ppb. Arsenic concentrations ranged from 83 to 90 ppb. Total mercury concentrations ranged from 0.3 to 0.5 ppb. Total chromium was detected at a concentration of 230 ppb. Soil borings also indicated the presence of VOCs (TCE; TCA; trans-1,2-DCE; PCE; and BTEX) in the soil. TCE concentrations ranged from 0.3 mg/kg to 1.27 mg/kg. TCA, DCE, and PCE were detected at concentrations of 0.008 mg/kg, 0.23 mg/kg, and 0.75 mg/kg, respectively. Benzene and ethylbenzene were detected at concentrations of 0.11 mg/kg and 0.22 mg/kg, respectively. Arsenic, chromium, mercury, and lead were detected in the soil at levels above the site average. Concentrations of arsenic in soils ranged from 5.8 mg/kg to 120 mg/kg. Chromium concentrations ranged from 8.6 mg/kg to 1800 mg/kg. Lead concentrations ranged from 10 to 35,000 mg/kg. Concentrations of mercury ranged from 0.3 mg/kg to 2 mg/kg. EP toxicity testing on the soils indicated no leachable amounts of chromium, arsenic, or mercury. EP toxicity testing on one soil sample yielded 18 ppm of leachable lead. Soil gas sampling detected the presence of TCA, TCE, PCE, vinyl chloride, and benzene near the monitoring wells in this area (ES, 1990).

AOC 2 **Post 1**

Post 1 is located in the south-central portion of the facility, southeast of building 4 and northwest of building 16. The area was formerly a fire truck garage. A remedial investigation report submitted by Engineering-Science in July 1990 indicated that 1,1,1-TCA and 2-hexanone were detected in ground-water monitoring wells in this area. 1,1,1-TCA was present at 120 ppb during a July 1988 sampling event but was not detected in April 1989. 2-Hexanone was present at 14 ppb in April 1989. No metals at levels above the site average were detected (ES, 1990).

AOC 3

Building 7 Tank Farm

This area is located in the northwest corner of the facility, near the south-southwest corner of building 7. The area includes former and current underground fuel storage tanks. The area also has aboveground storage tanks in a compound that is fenced and has a concrete dike. A remedial investigation report submitted by Engineering-Science in July 1990 indicated that contamination from an unidentified source was present in this area. VOCs, primarily chloroform; 1,1-DCE; cis-1,2-dichlorobenzene (DCB); PCE; TCE; 1,1,1-TCA; and vinyl chloride, were detected in monitoring wells in this area, at concentrations ranging from 5 ppb to 320 ppb. BTEX compounds were detected at concentrations of 12 ppb. Soil borings also indicated the presence of VOCs (BTEX compounds; TCE; trans-1,2-DCE; 1,1-DCA; dichlorobenzene; and TPH) in the soil. Trans-1,2-DCE concentrations ranged from 0.015 mg/kg to 0.691 mg/kg. 1,1-DCA was detected at concentrations ranging from 0.018 mg/kg to 1.230 mg/kg. TCE concentrations ranged from 0.022 mg/kg to 0.027 mg/kg. BTEX compounds were detected at concentrations ranging from 0.017 mg/kg to 8.9 mg/kg. DCB was detected at a concentration of 8.4 mg/kg. TPH concentrations ranged from 5.3 mg/kg to 290 mg/kg. Arsenic and mercury were detected at levels above the site average. Concentrations of arsenic ranged from 10 mg/kg to 59 mg/kg. Mercury concentrations ranged from 0.2 mg/kg to 0.78 mg/kg. Cyanide at concentrations of 0.39 mg/kg and 0.74 mg/kg was also detected in two soil borings (ES, 1990).

AOC 4

Forge Shop Addition

This area is located in the west-central portion of the facility, along the perimeter of building 28. The area housed forging presses and hydraulic equipment. A remedial investigation report submitted by Engineering-Science in July 1990 indicated that contamination from an unidentified source was present in this area. Soil borings in this area detected VOCs (TCE; trans-1,2-DCE; and cis-1,2-DCE) at concentrations ranging from 0.011 mg/kg to 1.25 mg/kg. Arsenic, cadmium, and lead were detected in the soil borings at levels above the site average. Arsenic concentrations ranged from 3.2 mg/kg to 53 mg/kg. Cadmium concentrations ranged from 2 mg/kg to 61 mg/kg. Lead concentrations ranged from 16 mg/kg to 6400 mg/kg. Several lead samples were found to be at concentrations above the EP toxicity threshold limit of 100 mg/kg. EP toxicity testing on the soil yielded leachable lead quantities of 0.22 mg/kg and 0.16 mg/kg. Cyanide was also detected at levels ranging from 0.2 mg/kg to 0.9 mg/kg. A sewer sample obtained from the southern side of the building indicated levels of chromium (66 mg/kg) and lead (340 mg/kg) above the site averages (ES, 1990).

AOC 5

Colwel Fill Area

This unit is located in the east-central portion of the site, north of building 31 and south of the softball diamonds. Aerial photographs of the area taken between 1953 and 1956 indicate that the area was used as a type of

landfill or refuse dump. A remedial investigation report submitted by Engineering-Science in July 1990 indicated that no significant levels of VOCs, semivolatiles, pesticides, PCBs, phenols, metals, or cyanide were detected in the ground water. Arsenic, chromium, lead, and mercury were detected in soil borings at levels above the site average. Arsenic concentrations ranged from 11 mg/kg to 38 mg/kg. Concentrations of lead ranged from 4.7 mg/kg to 89 mg/kg. Mercury concentrations ranged from 0.1 mg/kg to 24 mg/kg. Chromium and mercury were detected at levels above the EP toxicity threshold limit of 100 mg/kg and 4 mg/kg, respectively. Cyanide was detected at 4.65 mg/kg (ES, 1990).

AOC 6 **Colwel Complex**

This unit formerly was located in buildings 37, 38, and 40. TRW occupied the complex until 1986, when it was bought by Material Manufacturing Technology Center (MMTC). Building 38 housed a boiler, while buildings 37 and 40 housed offices, labs, and a pilot plant. MMTC (OHD 153 916 978), which is the compressor division of Air Forging Textron, used the site as a research and development lab for manufacturing airfoil blades until the end of 1990. There is no direct ground-water monitoring data for this area. A remedial investigation report submitted by Engineering-Science in July 1990 indicated that detectable quantities of PCBs and xylene were detected in the soil borings near building 40. Soil borings also indicated the presence near buildings 38 and 40 of arsenic, lead, and chromium at levels above the site average. Arsenic concentrations ranged from 6.5 mg/kg to 48 mg/kg. Lead concentrations ranged from 3 to 130 mg/kg. Chromium concentrations ranged from 8 mg/kg to 210 mg/kg. Mercury at levels ranging from 0.09 mg/kg to 0.73 mg/kg was detected near building 40. Levels of chromium near building 38 and 40 were above the EP toxicity threshold level (ES, 1990).

AOC 7 **Compressor Blowdown Area**

This area is located just outside of building 22. Compressed air containing small amounts of oil was exhausted onto the soil in this area. In 1990, a containment box was installed to prevent contamination of the soil. A remedial investigation report submitted by Engineering-Science in July 1990 indicated the presence of VOCs (PCE and TPH) in soil borings in the area. PCE was detected at concentrations of 13 mg/kg and TPH at concentrations of 170 mg/kg (ES, 1990).

AOC 8 **Former Underground Storage Tank Farm 5**

This area was located outside building 26, near 2-B dock. The area had four 2,000-gallon USTs containing fuel and oil. A remedial investigation report submitted by Engineering-Science in July 1990 indicated the presence of VOCs (TCE; 1,2-DCE; and TPH) in soil borings taken from this area. TCE concentrations ranged from 60 mg/kg to below the detection limit. Concentrations of 1,2-DCE ranged from 5 mg/kg to below the detection limit. TPH concentrations ranged from 58 mg/kg to 26,000 mg/kg. All tanks were removed in 1980 (ES, 1990).

5.0 CONCLUSIONS AND RECOMMENDATIONS

The PA/VSI identified 25 SWMUs and 8 AOCs at the Argo-Tech facility. Background information on the facility's location, operations, waste generating processes, release history, regulatory history, environmental setting, and receptors is presented in Section 2.0. SWMU-specific information, such as the unit's description, dates of operation, wastes managed, release controls, release history, and observed condition, is discussed in Section 3.0. AOCs are discussed in Section 4.0. Following are PRC's conclusions and recommendations for each SWMU and AOC. Table 3 identifies the SWMUs and AOCs at the facility and suggests further action.

SWMU 1 **Former Building 49, Underground Storage Tank**

Conclusions: The building was located in a fenced compound and was used for torpedo testing. The unit consisted of two test-firing cells, a storage area for Otto fuel, and a 1,000-gallon underground wastewater separation tank. Wastewater containing liquid fuel residue and cyanide is generated by torpedo test firing. Until late 1985, the wastewater was discharged through the 1,000-gallon underground steel storage tank. Liquid residues of unburned fuel were separated in the tank and hauled off site for disposal. The operation was moved to building 33 in 1987. Building 49 was demolished in 1989 (ES, 1990a). Remediation and RCRA closure activities for this unit began in August 1989 and were certified complete by Engineering-Science in July 1990. The unit poses a low threat of current or future releases. The probability of a release to environmental media is summarized below.

Ground Water: Low; all contaminated soil and sediment from the nearby runoff stream have been removed and incinerated off site. RCRA closure was certified by Engineering-Science in July 1990.

Surface Water: Low; all contaminated soil and sediment from the nearby runoff stream have been removed and incinerated off site. RCRA closure was certified by Engineering-Science in July 1990.

Air: Low; the unit was demolished in 1989 and certified closed in July 1990. Wastes no longer are generated or stored at this unit.

On-site Soil: Low; all contaminated soil and sediment from the nearby runoff stream has been removed and incinerated off site. RCRA closure was certified by Engineering-Science in July 1990.

Recommendations: PRC recommends no further action at this time.

Table 3

SWMU and AOC Summary

	SWMU Name	Operational Dates	Evidence of Release	Suggested Further Action
1	Former Building 49, Underground Storage Tank	1965 - 1987	Evidence of a release in 1985 was noted in the file material. No visible evidence of a release was observed during the VSI.	None
2	Building 45, Former Hazardous Waste Drum Storage Area	Unknown - 1985	None	None
3	Dock 2-B, Former TRW Hazardous Waste Drum Storage Area	1981 - 1990	None	None
4	Satellite Hazardous Waste Drum Accumulation Areas	Unknown - present	None	None
5	Airfoil Forging Textron Hazardous Waste Drum Storage Area	1989 - present	None	None
6	Argo-Tech Temporary Hazardous Waste Drum Storage Area	1989 - present	Engineering-Science reported VOCs and metals in both ground water and soil near this unit. No evidence of a release was observed during the VSI.	Include this SWMU as part of a CMS to identify and evaluate potential remedial alternatives.
7	Cyanide Afterburner	1987 - present	None	None
8	Former Concrete Block Filter Area	1969 - 1984	Engineering-Science reported VOCs and metals in both ground water and soil near this unit. No evidence of a release was observed during the VSI.	Include this SWMU as part of a CMS to identify and evaluate potential remedial alternatives.
9	Chip Dock Area	Unknown - present	Engineering-Science reported VOCs and metals in both ground water and soil near this unit. No evidence of a release was observed during the VSI.	Include this SWMU as part of a CMS to identify and evaluate potential remedial alternatives.
10	Trichloroethylene Aboveground Storage Tank	Unknown - present	Engineering-Science reported VOCs and metals in both ground water and soil near this unit.	Conduct additional sampling of soil and ground water.

Table 3 (Continued)

SWMU and AOC Summary

SWMU Name	Operational Dates	Evidence of Release	Suggested Further Action
11 Argo-Tech Wastewater Treatment Plant	1968 - present	Engineering-Science reported VOCs and metals in both ground water and soil near this unit. No evidence of a release was observed during the VSI.	Include this SWMU as part of a CMS to identify and evaluate potential remedial alternatives.
12 Plating Sumps	Unknown - present	Engineering-Science reported VOCs and metals in the soil and ground water in this area. No visible evidence of a release was noted during the VSI.	Include this SWMU as part of a CMS to identify and evaluate potential remedial alternatives.
13 Bulk Waste Otto Fuel Storage	1987 - present	None	None
14 Argo-Tech Electroplating Filter Cake Dumpster	Unknown - present	Engineering-Science reported VOCs and metals in both ground water and soil near this unit. No evidence of a release was observed during the VSI.	Include this SWMU as part of a CMS to identify and evaluate potential remedial alternatives.
15 Textron Kolene Wastewater Treatment System	1986 - present	None	None
16 Textron Filter Cake Dumpster	Unknown - present	Engineering-Science reported VOCs and metals in both ground water and soil near this unit. No evidence of a release was observed during the VSI.	Include this SWMU as part of a CMS to identify and evaluate potential remedial alternatives.
17 JP-4 Underground Storage Tank Farm	Unknown - present	Engineering-Science reported VOCs and metals in both ground water and soil near this unit. No evidence of a release was observed during the VSI.	Include this SWMU as part of a CMS to identify and evaluate potential remedial alternatives. Conduct leak testing of tanks.

Table 3 (Continued)

SWMU and AOC Summary

SWMU Name	Operational Dates	Evidence of Release	Suggested Further Action
18 Former Underground Storage Tank Farm 1	Unknown	Engineering-Science reported VOCs in the ground water and soil in this area. No visible evidence of a release was observed during the VSI.	Include this SWMU as part of a CMS to identify and evaluate potential remedial alternatives.
19 Former Underground Storage Tank 2	Unknown - 1965	Engineering-Science reported VOCs and PCBs in the ground water in this area. Elevated chromium levels were detected to the north of this area. No visible evidence of a release was observed during the VSI.	Include this SWMU as part of a CMS to identify and potential remedial alternatives.
20 Former Underground Storage Tank Farm 3	Unknown - 1980	Engineering-Science reported VOCs and metals in the ground water and soil in this area. No visible evidence of a release was observed during the VSI.	Include this SWMU as part of a CMS to identify and evaluate potential remedial alternatives.
21 Former Underground Storage Tank Farm 4	Unknown	Engineering-Science reported VOCs and metals in the ground water and soil in this area. No visible evidence of a release was observed during the VSI.	Include this SWMU as part of a CMS to identify and evaluate potential remedial alternatives. Verify that all tanks have been removed.
22 Scupper Area	Unknown - present	Engineering-Science reported VOCs and metals in both ground water and soil near this unit. No evidence of a release was observed during the VSI.	Conduct additional sampling of soil and ground water.
23 Waste Otto Fuel Drum Storage Area	Unknown - present	None	None
24 Bay k-7 Sump	Unknown - present	Engineering-Science reported semivolatiles and PCBs in the sediment in the sump.	Remove soil and sediment in the sump and dispose of it in an approved manner. Conduct sampling to determine whether there have been releases to soil or ground water.

Table 3 (Continued)

SWMU and AOC Summary

SWMU Name	Operational Dates	Evidence of Release	Suggested Further Action
Building 24 and Associated Drain Lines	Unknown - 1950s	Engineering-Science reported mercury in the ground water. VOCs and metals were detected in soil near this unit. No visible evidence of a release was observed during the VSI.	Conduct additional sampling of soil and ground water in this area.

Table 3 (Continued)

SWMU and AOC Summary

AOC Name	Operational Dates	Evidence of Release	Suggested Further Action
Railroad Spur/Lobby 3	1950s	Engineering-Science reported VOCs and metals in the soil and ground water in this area. No visible evidence of a release was observed during the VSI.	Conduct additional sampling of soil and ground water in this area. Remediation of the soil and ground water should be considered.
Post 1	Unknown	Engineering-Science reported VOCs in the ground water near the unit.	Conduct additional sampling of the ground water in this area. Sampling of the soil should be conducted.
Building 7 Tank Farm	Unknown - present	Engineering-Science reported VOCs and metals in the soil and ground water in this area. No visible evidence of a release was observed during the VSI.	Conduct additional sampling of soil and ground water in this area.
Forge Shop Addition	Unknown - present	Engineering-Science reported VOCs and metals in the soil near this unit.	Conduct a CMS to identify and evaluate potential remedial alternatives.
Colwel Fill Area	1953 - 1956	Engineering-Science reported VOCs, semivolatiles, other organics, pesticides, PCBs, phenols, metals, and cyanide in the ground water in this area. Metals also were detected in the soil. No visible evidence of a release was observed during the VSI.	Conduct a CMS to identify and evaluate potential remedial alternatives.
Colwel Complex	Unknown - 1990	Engineering-Science reported PCBs, xylene, and metals in the soil in this area. No visible evidence of a release was observed during the VSI.	Conduct a CMS to identify and evaluate potential remedial alternatives.
Compressor Blowdown Area	Unknown - present	Engineering-Science reported VOCs in the soil in this area.	Conduct ground-water sampling and additional soil sampling in this area.
Former Underground Storage Tank Farm 5	Unknown - 1980	Engineering-Science reported VOCs in the soils near this area.	Conduct ground-water sampling and additional soil sampling in this area.

SWMU 2 **Building 45, Former Hazardous Waste Drum Storage Area**

Conclusions: The unit was constructed in the 1940s as a rifle test-firing target range. The walls and floors of the building are constructed of concrete. The unit is divided into two separate areas (A and B) by a concrete wall. Area A is 315 square feet and area B is 420 square feet. The unit was used to store 55-gallon drums of hazardous wastes. RCRA closure of this unit was certified by Engineering-Science in July 1990. The unit poses a low threat of current or future releases. The probability of a release to environmental media is summarized below.

Ground Water: Low; the unit is indoors and wastes are no longer stored in it. The building acted as secondary containment. The unit was certified closed by Engineering-Science in July 1990.

Surface Water: Low; the unit is indoors and wastes are no longer stored in it. The distance to the nearest surface water limits the potential of a release to this medium. The unit was certified closed by Engineering-Science in July 1990.

Air: Low; the unit is indoors and wastes are no longer stored in it. The unit was certified closed by Engineering-Science in July 1990.

On-site Soil: Low; the unit is indoors and wastes are no longer stored in it. The unit was certified closed by Engineering-Science in July 1990.

Recommendations: PRC recommends no further action at this time.

SWMU 3 **Dock 2-B, Former TRW Hazardous Waste Drum Storage Area**

Conclusions: The area had a wood-block floor on a concrete base and occupied approximately 8,100 square feet. About 2100 square feet of this area were used for storage of hazardous waste. This area was enclosed by a 9-foot-high chain-link fence with a sliding gate (ES, 1988). The unit poses a low threat of current or future releases. The probability of a release to environmental media is summarized below.

Ground Water: Low; the unit is indoors and wastes are no longer stored in it. The unit was certified closed by Engineering-Science in July 1990.

Surface Water: Low; the unit is indoors and wastes are no longer stored in it. The distance to the nearest surface water limits the potential of a release to this medium. The unit was certified closed by Engineering-Science in July 1990.

Air: Low; the unit is indoors and wastes are no longer stored in it. The unit was certified closed by Engineering-Science in July 1990.

On-site Soil: Low; the unit is indoors and wastes are no longer stored in it. The unit was certified closed by Engineering-Science in July 1990.

Recommendations: PRC recommends no further action at this time.

SWMU 4 **Satellite Hazardous Waste Drum Accumulation Areas**

Conclusions: Each area consists of a single 55-gallon drum used to accumulate wastes generated by specific operations. When the drums are full they are transferred to either the Argo-Tech hazardous waste drum storage area (SWMU 6) or the Airfoil Forging Textron hazardous waste drum storage area (SWMU 5). The areas pose a low threat of current or future releases. The probability of a release to environmental media is summarized below.

Ground Water: Low; the units are indoors. The building acts as secondary containment.

Surface Water: Low; the units are indoors. The building acts as secondary containment. The distance to the nearest surface water limits the potential of a release to this medium.

Air: Low; the units are indoors. The building acts as secondary containment.

On-site Soil: Low; the units are indoors. The building acts as secondary containment.

Recommendations: PRC recommends no further action at this time.

SWMU 5 **Airfoil Forging Textron Hazardous Waste Drum Storage Area**

Conclusions: This unit is adjacent to the former 2-B dock area in the northwest corner of building 26. The unit is indoors and measures approximately 50 by 50 feet. The floor is wood block over by concrete. The unit is surrounded by a 9-foot-high chain-link fence. The unit is used for storage of hazardous waste that is to remain in storage for fewer than 90 days. The unit poses low threat of current or future releases. The probability of a release to environmental media is summarized below.

Ground Water: Low; the unit is indoors. The building acts as secondary containment.

Surface Water: Low; the unit is indoors. The building acts as secondary containment. The distance to the nearest surface water limits the potential of a release to this medium.

Air: Low; the unit is indoors. The building acts as secondary containment.

On-site Soil: Low; the unit is indoors. The building acts as secondary containment.

Recommendations: PRC recommends no further action at this time.

SWMU 6 **Argo-Tech Temporary Hazardous Waste Drum Storage Area**

Conclusions:

The storage area is a concrete pad approximately 10 by 15 feet. The floor is sloped and has grated floor drains which lead to a central sump. Wastewater collected in the sump is pumped to a holding tank and then back through the wastewater treatment system. Observed releases from an unknown source to the soil and ground water near this area have been reported. The releases and the probability of potential releases to environmental media are summarized below.

Ground Water: Engineering-Science reported that VOCs (DCE, TCE, and vinyl chloride) were detected in one monitoring well in the shallow subsurface adjacent to the plating area in building 4. Levels above the site average of arsenic, chromium, and lead were detected in one monitoring well located just northeast of this unit.

Surface Water: The potential for release to this medium is low. The distance to the nearest surface water limits the potential of a release to this medium.

Air: The potential for release to this medium is low. The wastes are contained in sealed drums.

On-site Soil: Engineering-Science reported that soil borings detected VOCs (TCE, DCE, ethyl benzene, and xylene) in the soil. Cadmium, chromium, and lead were detected in soil borings at levels above the site average. One soil sample contained levels of lead above the EP toxicity threshold level of 100 mg/kg. Concentrations of cyanide in the soils ranged from 0.79 mg/kg to 0.25 mg/kg (ES, 1990).

Recommendations:

Available sampling data indicate that the concentrations of VOCs (DCE and TCE) and metals (arsenic, chromium, and lead) in the ground water near this unit have exceeded the action levels proposed by EPA that would trigger a corrective measure study (CMS). Therefore, PRC recommends a CMS be conducted to identify and evaluate potential remedial alternatives.

SWMU 7 **Cyanide Afterburner**

Conclusions:

The unit is connected to the torpedo test engines that burn Otto fuel. Torpedo testing generates both liquid and gaseous waste streams that contain cyanide. The gas is collected and enters the afterburner which burns the gas at 1400°F and breaks the cyanide into CO_2 and N_2. The unit poses a low threat of current or future releases. The probability of a release to environmental media is summarized below.

Ground Water: Low; the unit is located on a concrete pad and manages only waste gases.

Surface Water: Low; the unit is located on a concrete pad and manages only waste gases.

Air: Low; the unit has a temperature probe that monitors temperature to assure complete combustion of cyanide waste gases.

On-site Soil: Low; the unit is located on a concrete pad and manages only waste gases.

Recommendations: PRC recommends no further action at this time.

SWMU 8 **Former Concrete Block Filter Area**

Conclusions: This unit formerly was used by TRW as part of its wastewater treatment process. The unit was located east of building 4. The unit consisted of a filter screen and dewatering lagoon designed to remove sludge from wastewaters generated at the facility. The filtrate was treated in the former wastewater treatment plant in building 4. Sludges were dewatered at this unit before the filter press was installed in 1984. Observed releases from an unknown source to the soil and ground water near this area have been reported. The releases and the probability of potential releases to environmental media are summarized below.

Ground Water: Engineering-Science reported that VOCs (TCA, DCE, DCA, and PCE) were detected in a monitoring well in this area. Arsenic, chromium, and lead also were detected in a monitoring well southeast of this unit.

Surface Water: The potential for release to this medium is low. The distance to the nearest surface water limits the potential of a release to this medium.

Air: The potential for release to this medium is low. The area no longer manages waste.

On-site Soil: Low; Engineering-Science reported that no VOCs, BTEX, or PCBs were detected in soil borings taken from this area. No metals at levels above the site and regional averages were detected in soil borings (ES, 1990).

Recommendations: Available sampling data indicates that the concentrations of VOCs (1,1,1-TCA; 1,1-DCE; and PCE) and metals (arsenic, chromium, and lead) in the ground water near this unit have exceeded the action levels proposed by EPA that would trigger a corrective measure study (CMS). Therefore, PRC recommends a CMS be conducted to identify and evaluate potential remedial alternatives.

SWMU 9 **Chip Dock Area**

Conclusions: The area measures approximately 70 by 100 feet and has an asphalt surface underlain by concrete. The unit has several dumpsters where scrap metal and metal cuttings are stored before they are shipped off site for reclamation. Grated trench drains surround the unit and drain into a

oil/water separator tank located under the chip dock area. The unit poses a low threat of current or future releases. Observed releases from an unknown source to the soil and ground water near this area have been reported. The releases and the probability of potential releases to environmental media are summarized below.

Ground Water: Engineering-Science reported that VOCs (TCE, TCA, PCE, DCE, DCA, and vinyl chloride) at concentrations ranging from 10,000 ppb to 130,000 ppb were detected in monitoring wells at 14 to 15 feet below grade. TCE also was detected in wells at depths of 30 feet and 50 feet. Toluene was detected at 81 ppb. Ground-water monitoring wells also detected the presence of lead, chromium, arsenic, and mercury at levels above the site average.

Surface Water: The potential for releases to this medium is low. The distance to the nearest surface water limits the potential for releases to this medium.

Air: The potential for releases to this medium is low.

On-site Soil: Engineering-Science reported that soil borings detected VOCs (TCE, TCA, DCE, DCA, PCE, and PCBs) in the soil. Arsenic, cadmium, chromium, and lead were detected in the soil at levels above the site average. All values were below the EP toxicity threshold level except for one chromium and one lead sample (ES, 1990).

Recommendations: Available sampling data indicate that the concentrations of VOCs and metals (arsenic, chromium, mercury, and lead) in the ground water near this unit have exceeded the action levels proposed by EPA that would trigger a corrective measure study. In addition, cadmium concentrations in the soil also exceeded the action levels. Therefore, PRC recommends a CMS be conducted to identify and evaluate potential remedial alternatives.

SWMU 10 **Trichloroethylene Aboveground Storage Tank**

Conclusions: The unit consisted of a 500-gallon aboveground storage tank in a concrete-vaulted area. The tank contains spent TCE, which is fed to the solvent recovery still. Observed releases from an unknown source to the soil and ground water near this area have been reported. The releases and the probability of potential releases to environmental media are summarized below.

Ground Water: Engineering-Science reported that VOCs were detected in ground-water monitoring wells near the area. Ground-water monitoring wells also indicated the presence of lead, chromium, and arsenic at levels above the site average.

Surface Water: The potential for releases to this medium is low. The distance to the nearest surface water limits the potential for releases to this medium.

Air: The potential for releases to this medium is low. The waste is contained in a sealed tank.

On-site Soil: Engineering-Science reported that soil borings did not detect any contaminants in the soil in this area. The potential for future release to this medium is low. The unit is on a concrete pad and waste is contained in a sealed tank.

Recommendations: PRC recommends additional sampling in the area to determine the extent of ground-water contamination.

SWMU 11 **Argo-Tech Wastewater Treatment Plant**

Conclusions: The unit has a concrete floor and occupies an area measuring 320 by 320 feet. In the floor, there are trench drains that lead to a sump. The unit treats wastewaters generated by the various tenants at the facility. The unit consists of cyanide destruction tanks, chrome reduction tanks, and chemical precipitation/neutralization tanks. A flocculation and lamella clarifier removes sludge, which is sent to a filter press for dewatering. This metal finishing sludge (F006) is stored in a dumpster (SWMU 14) outside building 4 until it is taken off site for disposal. Treated wastewater is discharged at a rate of approximately 0.354 million gallons per day through NPDES Outfall 602 to a storm sewer (Argo-Tech, 1989). Observed releases from an unknown source to the soil and ground water near this area have been reported. The releases and the probability of potential releases to environmental media are summarized below.

Ground Water: Engineering-Science reported that VOCs (DCE, TCE, and vinyl chloride) were detected in one monitoring well in the shallow subsurface adjacent to the plating area in building 4. Levels of arsenic, chromium, and lead at concentrations above the site average were detected in one monitoring well located just northeast of this unit.

Surface Water: The potential for release to this medium is low. The distance to the nearest surface water limits the potential of a release to this medium.

Air: The potential for release to this medium is low. The building acts as secondary containment.

On-site Soil: Engineering-Science reported that soil borings detected VOCs (TCE, DCE, ethyl benzene, and xylene) in the soil. Cadmium, chromium, and lead at levels above the site average were detected in soil borings. One soil sample contained levels of lead above the EP toxicity threshold level of 100 mg/kg. Concentrations of cyanide in the soils ranged from 0.79 mg/kg 0.25 mg/kg. Cadmium, chromium, and lead were detected in soil borings at levels above the site average. One soil sample contained levels of lead above the EP toxicity threshold level of 100 mg/kg (ES, 1990).

Recommendations: Available sampling data indicate that the concentrations of VOCs (DCE and TCE) and metals (arsenic, chromium, and lead) in the ground water near

this unit have exceeded the action levels proposed by EPA that would trigger a corrective measure study (CMS). Therefore, PRC recommends a CMS be conducted to identify and evaluate potential remedial alternatives.

SWMU 12 **Plating Sumps**

Conclusions: This area is located in the southeast corner of building 4. The unit consists of sumps designed to collect waste plating waters that might result from spills or leaks in the plating tanks. Observed releases from an unknown source to the soil and ground water near this area have been reported. The releases and the probability of potential releases to environmental media are summarized below.

Ground Water: Engineering-Science reported that VOCs (DCE, TCE, and vinyl chloride) were detected in one monitoring well in the shallow subsurface adjacent to the plating area in building 4. Levels above the site average of arsenic, chromium, and lead also were detected in one monitoring well located northeast of this unit.

Surface Water: Low; the distance to the nearest surface water limits the potential of a release to this medium.

Air: Low; the unit is indoors. The building acts as secondary containment.

On-site Soil: Engineering-Science reported that soil borings detected VOCs (TCE, DCE, and BTEX) in the soil. Cadmium, chromium, and lead at levels above the site average were detected in soil borings. One soil sample contained levels of lead above the EP toxicity threshold level of 100 mg/kg. Cyanide in soils ranged from 0.79 mg/kg to 25 mg/kg.

Recommendations: Available sampling data indicate that the concentrations of VOCs (DCE and TCE) and metals (arsenic, chromium, and lead) in the ground water near this unit have exceeded the action levels proposed by EPA that would trigger a corrective measure study. Therefore, PRC recommends a CMS be conducted to identify and evaluate potential remedial alternatives. PRC also recommends that the integrity of the sumps be checked.

SWMU 13 **Bulk Waste Otto Fuel Storage**

Conclusions: The unit consists of three 5,000-gallon aboveground storage tanks. The tanks store waste Otto fuel generated by torpedo testing. They are located in a room that has cinderblock walls and a concrete floor. The floor has drains that are connected to the tanks thus creating a closed system for spill control. Observed releases from an unknown source to the soil and ground water near this area have been reported. The releases and the probability of potential releases to environmental media are summarized below.

Ground Water: Low; the unit is indoors and stands on a concrete floor.

Surface Water: Low; the distance to surface water limits the potential of a release to this medium.

Air: The potential for a release to this medium is low. The wastes are contained in sealed tanks. The building acts as secondary containment.

On-site Soil: Low; the unit is indoors and stands on a concrete floor.

Recommendations: PRC recommends no further action at this time.

SWMU 14 **Argo-Tech Electroplating Filter Cake Dumpster**

Conclusions: This unit is located east of building 4. It is a dumpster on a concrete roadway. The filter cake is stored in this dumpster and picked up by Envirite for disposal off site. Observed releases from an unknown source to the soil and ground water near this area have been reported. The releases and the probability of potential releases to environmental media are summarized below.

Ground Water: Engineering-Science reported that VOCs (DCE, TCE, and vinyl chloride) were detected in one monitoring well in the shallow subsurface adjacent to the plating area in building 4. Levels above the site average of arsenic, chromium, and lead were detected in one monitoring well located just northeast of this unit.

Surface Water: The potential for release to this medium is low. The distance to the nearest surface water limits the potential of a release to this media.

Air: The potential for release to this medium is low. The wastes do not volatilize readily.

On-site Soil: Engineering-Science reported that soil borings also detected VOCs (TCE, DCE, ethyl benzene, and xylene) in the soil. In soil borings, cadmium, chromium, and lead were detected at levels above the site average. One soil sample contained levels of lead above the EP toxicity threshold level of 100 mg/kg. Cyanide in the soils ranged from 0.79 mg/kg to 0.25 mg/kg (ES, 1990).

Recommendations: Available sampling data indicate that the concentrations of VOCs (DCE and TCE) and metals (arsenic, chromium, and lead) in the ground water near this unit have exceeded the action levels proposed by EPA that would trigger a corrective measure study. Therefore, PRC recommends a CMS be conducted to identify and evaluate potential remedial alternatives.

SWMU 15 **Textron Kolene Wastewater Treatment System**

Conclusions: The unit treats wastewaters generated by the Kolene metal finishing operation run by Textron. The unit consists of a metal precipitation/ reduction and an acid/base neutralization process to treat the wastewater.

A filter press dewaters the wastewater. Dewatered filter cake is stored in a dumpster (SWMU 16) located east of building 4. It is taken offsite for disposal by Envirite. Waste Kolene is stored in 55-gallon drums in Airfoil Forging Textron hazardous waste drum storage area (SWMU 5) before it is shipped off site for disposal. The Textron wastewater treatment plant discharges approximately 15,000 to 20,000 gallons per day of treated water to the Euclid sanitary sewer system. The unit poses a low threat of current or future releases. The probability of a release to environmental media is summarized below.

Ground Water: Low; the unit is indoors and discharges treated wastewater to the sanitary sewer system.

Surface Water: Low; the unit is indoors. The distance to surface water limits the potential of a release to this medium.

Air: Low; the unit is indoors. The building acts as secondary containment.

On-site Soil: Low; the unit is indoors. The building acts as secondary containment and limits the potential of a release to this medium.

Recommendations: PRC recommends no further action at this time.

SWMU 16 **Textron Filter Cake Dumpster**

Conclusions: This unit is located east of building 4. It is a dumpster on a concrete roadway. Observed releases from an unknown source to the soil and ground water near this area have been reported. The releases and the probability of potential releases to environmental media are summarized below.

Ground Water: Engineering-Science reported that VOCs (DCE, TCE, and vinyl chloride) were detected in one monitoring well in the shallow subsurface adjacent to the plating area in building 4. Levels above the site average of arsenic, chromium, and lead were detected in one monitoring well located just northeast of this unit.

Surface Water: The potential for release to this medium is low. The distance to the nearest surface water limits the potential of a release to this medium.

Air: The potential for release to this medium is low. The wastes do not volatilize readily.

On-site Soil: Engineering-Science reported that soil borings also detected VOCs (TCE, DCE, ethyl benzene, and xylene) in the soil. Cadmium, chromium, and lead at levels above the site average were detected in soil borings. One soil sample contained levels of lead above the EP toxicity threshold level of 100 mg/kg. Concentrations of cyanide in the soils ranged from 0.79 mg/kg to 25 mg/kg (ES, 1990).

Recommendations: Available sampling data indicate that the concentrations of VOCs (DCE and TCE) and metals (arsenic, chromium, and lead) in the ground water near this unit have exceeded the action levels proposed by EPA that would trigger a corrective measure study. Therefore, PRC recommends a CMS be conducted to identify and evaluate potential remedial alternatives.

SWMU 17 **JP-4 Underground Storage Tank Farm**

Conclusions: This unit consists of four underground storage tanks. There are two 10,000-gallon virgin fuel tanks, one 20,000-gallon dump tank, and one 10,000-gallon oil/water separator tank. Several UST farms (SWMUs 18 through 21) previously were located near this area. Observed releases to the soil and ground water near this area have been reported. The releases and the probability of potential releases to environmental media are summarized below.

Ground Water: Engineering-Science reported that VOCs (PCBs and BTEX) have been detected in monitoring wells in this area. Free-floating hydrocarbon layers up to 3 inches thick have been detected in 3 ground-water monitoring wells in this area. Concentrations of lead, chromium, and arsenic were detected at levels above the site average in one monitoring well as well.

Surface Water: The potential for a release to this medium is low. The distance to surface water limits the potential of a release to this medium.

Air: The potential for a release to this medium is low. The wastes are contained in sealed tanks underground.

On-site Soil: Engineering-Science reported that VOCs (xylene, and unidentified hydrocarbons) and PCBs were detected in soil borings taken from this area. Lead levels in the soil were above the site and regional values.

Recommendations: Available sampling data indicate that the concentrations of VOCs (benzene) PCBs, and metals (arsenic, chromium, and lead) in the ground water near this unit have exceeded the action levels proposed by EPA that would trigger a corrective measure study. PCB concentrations in the soil also have exceeded the proposed action levels. The exact source of the contamination is unknown. Therefore, PRC recommends a CMS be conducted to identify and evaluate potential remedial alternatives. PRC also recommends that the tanks be tested for leaks and to determine their integrity.

SWMU 18 **Former Underground Storage Tank Farm 1**

Conclusions: This area was located northeast of building 32. The area had 14 USTs, ranging in volume from 2,000 gallons to 5,000 gallons and containing both virgin and spent aviation fuel. Observed releases to the ground water near this area have been reported. The releases and the probability of potential releases to environmental media are summarized below.

Ground Water: Engineering-Science reported that VOCs (BTEX) were detected in monitoring wells near this area.

Surface Water: Low; the distance to the nearest surface water limits the potential of a release to this medium.

Air: Low; all tanks were removed and the area currently is covered with grass.

On-site Soil: Low; Engineering-Science reported that soil borings did not detect VOCs in the soil. Arsenic, cadmium, chromium, mercury, and lead levels were reported to be below or consistent with the site average (ES, 1990).

Recommendations: Available sampling data indicate that the concentrations of VOCs (benzene) in the ground water near this unit have exceeded the action levels proposed by EPA that would trigger a corrective measure study. The exact source of the contamination is unknown. Therefore, PRC recommends a CMS be conducted to identify and evaluate potential remedial alternatives.

SWMU 19 **Former Underground Storage Tank Farm 2**

Conclusions: This area was located between buildings 33 and 31, just southwest of the current JP-4 tank farm area (SWMU 17). There were five tanks, ranging in volume from 10,000 gallons to 20,000 gallons and containing various fuels. Observed releases to the ground water and soil near this area have been reported. The releases and the probability of potential releases to environmental media are summarized below.

Ground Water: Engineering-Science reported that free-floating hydrocarbon layers up to 3 inches thick have been detected in 3 ground-water monitoring wells in this area. BTEX and PCBs have been detected in monitoring wells in this area as well.

Surface Water: Low; the distance to the nearest surface water limits the potential of a release to this medium.

Air: Low; all tanks were removed and the area currently is covered with grass.

On-site Soil: Engineering-Science reported that chromium levels in the soil to the north were above the site and regional values.

Recommendations: Available sampling data indicate that the concentrations of VOCs (benzene) and PCBs in the ground water near this unit have exceeded the action levels proposed by EPA that would trigger a corrective measure study. The exact source of the contamination is unknown. Therefore, PRC recommends a CMS be conducted to identify and evaluate potential remedial alternatives.

SWMU 20 **Former Underground Storage Tank Farm 3**

Conclusions: This area was located east of building 31. It had 7 tanks, containing various virgin and spent fuels and ranging in size from 2,000 to 5,000 gallons. Observed releases to the ground water and soil near this area have been reported. The releases and the probability of potential releases to environmental media are summarized below.

Ground Water: Engineering-Science reported that free-floating hydrocarbon layers up to 3 inches thick have been detected in 3 ground-water monitoring wells in this area. BTEX and PCBs also have been detected in the monitoring well located in this area. Lead, mercury, and arsenic also were detected in this well.

Surface Water: Low; the distance to the nearest surface water limits the potential of a release to this medium.

Air: Low; all tanks were removed and the area currently is covered with grass.

On-site Soil: Engineering-Science reported that soil borings detected VOCs (xylene, and unidentified hydrocarbons) and PCBs in the soil. Lead levels in the soil from this area were above the site and regional values.

Recommendations: Available sampling data indicate that the concentrations of VOCs (benzene), PCBs and metals (arsenic, chromium, and lead) in the ground water near this unit have exceeded the action levels proposed by EPA that would trigger a corrective measure study. PCB concentrations in the soil also have exceeded the proposed action levels. The exact source of the contamination is unknown. Therefore, PRC recommends a CMS be conducted to identify and evaluate potential remedial alternatives.

SWMU 21 **Former Underground Storage Tank Farm 4**

Conclusions: This area was located just off the northwest corner of building 30. The area had 8 USTs that contained various fuels and that ranged in capacity from 500 to 3,000 gallons. Observed releases to the ground water and soil near this area have been reported. The releases and the probability of potential releases to environmental media are summarized below.

Ground Water: Engineering-Science reported that ground-water monitoring wells near the area detected the presence of vinyl chloride. Ground-water monitoring wells also detected the presence of lead, chromium, mercury, and arsenic at levels above the site average.

Surface Water: Low; the distance to the nearest surface water limits the potential of a release to this medium.

Air: Low; the unit is no longer in operation. At least 6 of the 8 tanks have been removed.

On-site Soil: Engineering-Science reported that soil borings detected VOCs (TCE, TCA, DCE, BTEX, and unidentified hydrocarbons) and PCBsin the soil to the northwest of these tanks. Arsenic, chromium, lead, and mercury levels in the soil were above the site and regional values. EP toxicity testing from one soil sample yielded 18 ppm of leachable lead.

Recommendations: Available sampling data indicate that the concentrations of VOCs (vinyl chloride) and metals (arsenic, chromium, and lead) in the ground water near this unit have exceeded the action levels proposed by EPA that would trigger a corrective measure study. The exact source of the contamination is unknown. Therefore, PRC recommends a CMS be conducted to identify and evaluate potential remedial alternatives. PRC also recommends a study to determine whether all tanks in this tank farm have been removed.

SWMU 22 **Scupper Area**

Conclusions: The area consists of an enclosed concrete pad measuring approximately 15 by 30 feet. The unit is used to store combustible liquids and waste oils in 55-gallon drums. The pad has grating in the front and a scupper at the back. There is no drain in the unit. Observed releases from an unknown source to the soil and ground water near this area have been reported. The releases and the probability of potential releases to environmental media are summarized below.

Ground Water: Low, the unit is on a concrete pad with a sump in the front covered by steel grating and a scupper in the back.

Surface Water: Low; the distance to the nearest surface water limits the potential of a release to this medium.

Air: Low; the wastes are in sealed 55-gallon drums

On-site Soil: In July 1990, Engineering-Science indicated the presence of TCE, DCE, and TPH in soil borings near the area (ES, 1990).

Recommendations: Available sampling data indicate that there are elevated concentrations of TPH in the soil near this unit. TPH concentrations have ranged from 26,000 mg/kg to 58 mg/kg. The exact source of the contamination is unknown. PRC recommends additional soil sampling to determine the extent of the contamination. Ground-water sampling in this area also should be conducted.

SWMU 23 **Waste Otto Fuel Drum Storage Area**

Conclusions: This unit is located in building 56. The unit stores both virgin and spent Otto fuel and wastes associated with torpedo testing (that is, protective clothing). The wastes are stored in 55-gallon drums on a concrete floor. Storage capacity for the unit is approximately 200 drums. Typically, about 5 to 10 drums store waste, and the rest store virgin Otto fuel.

Ground Water: Low; the wastes are stored in sealed drums located indoors on a concrete floor. The building acts as secondary containment.

Surface Water: Low; the distance to surface water limits the potential of a release to this medium.

Air: The potential for a release to this medium is low. The wastes are contained in sealed drums. The building acts as secondary containment.

On-site Soil: Low; the unit is indoors on a concrete floor. The building acts as secondary containment.

Recommendations: PRC recommends no further action at this time.

SWMU 24 **Bay k-7 Sump**

Conclusions: This unit is located in the west-central portion of the facility, west of building 3. It consists of a storm drain sump. Sediment in the sump had a relatively high concentration of semivolatiles, ranging from 3,800 mg/kg to 58,000 mg/kg, and of PCBs, at 140 mg/kg. Water in the sump exhibited low levels of VOCs, PCBs, and pesticides. The releases and the probability of potential releases to environmental media are summarized below.

Ground Water: Unknown; the area was not inspected during the VSI. Engineering-Science reported that no ground-water data about this area were obtained during the remedial investigation.

Surface Water: Low; the distance to the nearest surface water limits the potential of a release to this medium.

Air: Low; the unit is indoors. The building acts as secondary containment.

On-site Soil: Unknown; the area was not inspected during the VSI.

Recommendations: Available sampling data indicate that relatively high concentrations of semivolatiles, ranging from 3,800 mg/kg to 58,000 mg/kg and PCBs, at 140 mg/kg, were obtained from the sump. PRC recommends that soils and sediment be removed from the sump and disposed of according to applicable regulations. PRC also recommends additional sampling to determine whether there have been releases to the soil or ground water.

SWMU 25 **Building 24 and Associated Drain Lines**

Conclusions: This area is located in the north-central portion of the facility, near buildings 24, 41, 45, and 26. Past operations in building 24 included mercury cast testing. Two aboveground JP-5 fuel storage tanks currently are located near the exterior of building 24. Observed releases from an unknown source to the soil and groundwater near this area have been reported. The releases and the probability of potential releases to environmental media are summarized below.

Ground Water: Engineering-Science reported that mercury at levels above the site average was detected in monitoring wells in this area. No VOCs, BTEX, or PCBs were detected in monitoring wells in the area.

Surface Water: Low; the distance to the nearest surface water limits the potential of a release to this medium.

Air: Low; wastes are no longer generated at this unit.

On-site Soil: Engineering-Science reported that VOCs were detected in soil borings taken on the northeast side of building 24. Arsenic, cadmium, chromium, lead, and mercury also were detected at levels above the site average in the soil borings. Some lead and mercury soil samples were above the EP toxicity threshold levels (100 mg/kg and 4 mg/kg, respectively). However,EP toxicity testing on these samples yielded no detectable quantities of leachable lead or mercury. Samples from drain lines in building 24 detected lead, mercury, cadmium, and chromium at levels above the site average (ES, 1990).

Recommendations: Available sampling data indicate elevated concentrations of VOCs (TCE; cis-1,2-DCE; PCE; 1,1,2,2-PCA; TPH; and toluene) and metals (arsenic, cadmium, chromium, lead, and mercury) in the soil near this unit. TPH concentrations ranged from 780 mg/kg to 49 mg/kg. The exact source of the contamination is unknown. PRC recommends additional soil sampling to determine the source and extent of the contamination.

AOC 1 **Railroad Spur/Lobby 3**

Conclusions: This AOC is located north of building 15 and northeast of buildings 19 and 24. Most of the area currently is grass-covered. In the 1950s, this area was used to make mercury castings or moldings (mer-cast). A 15,000-gallon aboveground storage tank was located south of building 19. The tank contained TCA used as a refrigerant in the mer-cast process. Observed releases from an unknown source to the soil and ground water near this area have been reported. The releases and the probability of potential releases to environmental media are summarized below.

Ground Water: Engineering-Science reported that VOCs (TCE, DCE, and vinyl chloride) were detected in ground-water monitoring wells in this area. Monitoring wells also detected the presence of lead, arsenic, chromium, and mercury.

Surface Water: Low; the distance to the nearest surface water limits the potential of a release to this medium.

Air: Low; hazardous wastes no longer are managed in the area.

On-site Soil: Engineering-Science reported that soil borings also indicated the presence of VOCs (TCE, TCA, DCE, PCE, and BTEX) in the soil. Arsenic, chromium, mercury, and lead were detected in the soil at levels above the site average. EP toxicity testing on the soils indicated no

leachable amount of chromium, arsenic, or mercury. EP toxicity testing on one soil sample yielded 18 ppm of leachable lead (ES, 1990).

Recommendations: Available sampling data indicates that the concentrations of VOCs (TCE and vinyl chloride) and metals (arsenic, chromium, and lead) in the ground water near this unit have exceeded the action levels proposed by EPA that would trigger a corrective measure study (CMS). Arsenic and chromium concentrations in the soil also exceeded action levels. The exact source of the contamination is unknown. Therefore, PRC recommends a CMS be conducted to identify and evaluate potential remedial alternatives.

AOC 2 **Post 1**

Conclusions: The area formerly was a fire truck garage. Observed releases from an unknown source to the soil and ground water near this area have been reported. The releases and the probability of potential releases to environmental media are summarized below.

Ground Water: Engineering-Science reported TCA and 2-hexanone were detected in ground-water monitoring wells in this area.

Surface Water: Low; the distance to the nearest surface water limits the potential of a release to this medium.

Air: Low; hazardous wastes no longer are managed in the area.

On-site Soil: Low; generates hazardous wastes no longer are managed or generated in the area.

Recommendations: Available sampling data indicate that 1,1,1-TCA and 2-hexanone were present in the ground water near this unit. PRC recommends that further sampling of the ground water be conducted to determine the extent of the contamination. Sampling of the soil should be conducted.

AOC 3 **Building 7 Tank Farm**

Conclusions: This area is located in the northwest corner of the facility, near the south-southwest corner of building 7. The area includes former and current underground fuel storage tanks. The area also has aboveground storage tanks in a fenced compound that is surrounded by a concrete dike. Observed releases from an unknown source to the soil and ground water near this area have been reported. The releases and the probability of potential releases to environmental media are summarized below.

Ground Water: Engineering-Science reported that VOCs (DCA, TCE, TCA, PCE, vinyl chloride, chloroform, dichlorobenzene, and BTEX compounds) were detected in monitoring wells in this area.

Surface Water: Low; the distance to the nearest surface water limits the potential of a release to this medium.

Air: Low; the unit is underground.

On-site Soil: Engineering-Science reported that soil borings also detected the presence of VOCs (BTEX compounds, TCE, DCA, DCE, dichlorobenzene, and TPH) in the soil. Arsenic and mercury were detected at levels above the site average. Cyanide, at 0.39 mg/kg and 0.74 mg/kg, was also detected in two soil borings (ES, 1990).

Recommendations: Available sampling data indicate elevated concentrations of VOCs (chloroform; 1,1-DCE; cis-1,2-DCB; PCE; TCE; 1,1,1-TCA; and vinyl chloride) and metals (arsenic, cadmium, chromium, lead, and mercury) in the ground water near this unit. VOC concentrations ranged from 5 ppb to 320 ppb. Soils in this area also exhibited elevated levels of VOCs and metals. TPH concentrations in the soil ranged from 5.3 mg/kg to 290 mg/kg. The exact source of the contamination is unknown. PRC recommends additional soil and ground water sampling to determine the source and extent of the contamination.

AOC 4 **Forge Shop Addition**

Conclusions: This area is located in the west-central portion of the facility, along the perimeter of building 28. The area housed forging presses and hydraulic equipment. Observed releases from an unknown source to the soil and ground water near this area have been reported. The releases and the probability of potential releases to environmental media are summarized below.

Ground Water: Unknown; the area was not inspected during the VSI.

Surface Water: Low; the distance to the nearest surface water limits the potential of a release to this medium.

Air: Low; the unit is indoors. The building acts as secondary containment.

On-site Soil: Engineering-Science reported that VOCs (TCE and DCE) were present in soil borings in this area. Arsenic, cadmium, and lead were detected in the soil borings at levels above the site average. Several lead samples were above the EP toxicity threshold limit of 100 mg/kg. EP toxicity testing on the soil yielded leachable lead in quantities of 0.22 mg/kg and 0.16 mg/kg. Cyanide also was detected at levels ranging from 0.2 mg/kg to 0.9 mg/kg. A sewer sample obtained from the southern side of the building indicated chromium and lead at levels above the site averages (ES, 1990).

Recommendations: Available sampling data indicate elevated concentrations of VOCs (TCE; trans-1,2-DCE; and cis-1,2-DCE) and metals (arsenic, cadmium, and lead) in the soil near this unit. Lead concentrations ranged from 16 mg/kg to 6,400 mg/kg. Cadmium concentrations (61 mg/kg) exceeded the action level proposed by EPA that would trigger a CMS. The exact source of the contamination is unknown. Therefore, PRC recommends a CMS be conducted to identify and evaluate potential remedial alternatives.

AOC 5 **Colwel Fill Area**

Conclusions: This unit is located east of East Road and building 33. Aerial photographs taken between 1953 and 1956 indicate that the area was used as a landfill or refuse dump. Observed releases from an unknown source to the soil near this area have been reported. The releases and the probability of potential releases to environmental media are summarized below.

Ground Water: Low; Engineering-Science reported that no significant levels of VOCs, semivolatiles, organic compounds, pesticides, PCBs, phenols, metals, or cyanide were detected in monitoring wells near the area.

Surface Water: Low; the distance to the nearest surface water limits the potential of a release to this medium.

Air: Low; the unit is covered with grass and hazardous wastes no longer are managed there. The building acts as secondary containment.

On-site Soil: Engineering-Science reported that arsenic, chromium, lead, and mercury were detected in soil borings at levels above the site average. Chromium and mercury were above the EP toxicity threshold limit of 100 mg/kg and 4 mg/kg, respectively. Cyanide was detected at 4.65 mg/kg.

Recommendations: Available sampling data indicate elevated concentrations of metals (arsenic, chromium, lead, and mercury) in the soil near this unit. Lead concentrations ranged from 4.7 mg/kg to 89 mg/kg. Mercury concentrations (24 mg/kg) exceeded the action level proposed by EPA that would trigger a CMS. The exact source of the contamination is unknown. Therefore, PRC recommends a CMS be conducted to identify and evaluate potential remedial alternatives.

AOC 6 **Colwel Complex**

Conclusions: This unit formerly was located in buildings 37, 38, and 40. TRW occupied the complex until 1986, when it was bought by Material Manufacturing Technology Center (MMTC). Building 38 housed a boiler, while buildings 37 and 40 housed offices, labs, and a pilot plant. Until the end of 1990, MMTC (OHD 153 916 978), which is the compressor division of Air Forging Textron, used the site as a research and development lab for manufacturing airfoil blades. Observed releases from an unknown source to the soil near this area have been reported. The releases and the probability of potential releases to environmental media are summarized below.

Ground Water: Low; Engineering-Science reported that there are no direct ground-water data for this area. The unit is indoors and wastes are no longer managed there.

Surface Water: Low; the distance to the nearest surface water limits the potential of a release to this medium.

Air: Low; the unit is indoors and wastes are no longer managed there. The building acts as secondary containment.

On-site Soil: Engineering-Science reported that quantities of PCBs and xylene were detected in the soil borings near building 40. Soil borings also indicated the presence near buildings 38 and 40 of arsenic, lead, and chromium at levels above the site average. Mercury at levels above the site average was detected near building 40. Levels of chromium near buildings 38 and 40 were above the EP toxicity threshold level (ES, 1990).

Recommendations: Available sampling data indicate that detectable quantities of xylene and elevated concentrations of metals (arsenic, chromium, and lead) were detected in the soil near this unit. PCB concentrations in the soil near building 40 exceeded the action level proposed by EPA that would trigger a CMS. The exact source of the contamination is unknown. Therefore, PRC recommends a CMS be conducted to identify and evaluate potential remedial alternatives.

AOC 7 **Compressor Blowdown Area**

Conclusions: This area is located just outside building 22. Compressed air containing small amounts of oil was exhausted onto the soil in this area. In 1990, a containment box was installed to prevent contamination of the soil. Observed releases to the soil near this area have been reported. The releases and the probability of potential releases to environmental media are summarized below.

Ground Water: Moderate; Engineering-Science reported that no ground water data for this area were available. Soil borings, however, indicate the presence of contamination.

Surface Water: Low; the distance to the nearest surface water limits the potential of a release to this medium.

Air: Low; the wastes are contained in a concrete containment box.

On-site Soil: Engineering-Science reported that DCE, PCE, TCE, and TPH were detected in soil borings taken in the area (ES, 1990).

Recommendations: Available sampling data indicate that elevated concentrations of PCE and TPH were detected in the soil near this unit. PRC recommends ground-water sampling and additional sampling of the soil be conducted in this area to determine the extent of the contamination.

AOC 8 **Former Underground Storage Tank Farm 5**

Conclusions: This area was located outside building 26, near 2-B dock. The area had four 2,000-gallon USTs, containing fuel and oil. Observed releases from an unknown source to the ground water and soil near this area have been

reported. The releases and the probability of potential releases to environmental media are summarized below.

Ground Water: Moderate; Engineering-Science reported that no ground water data for this area were available. Soil borings, however, indicate the presence of contamination.

Surface Water: Low; the distance to the nearest surface water limits the potential of a release to this medium.

Air: Low; the unit is no longer in operation. All tanks have been removed.

On-site Soil: Engineering-Science reported the presence of TCE, DCE, and TPH in soil borings taken from this area. TPH concentrations ranged from 58 mg/kg to 26,000 mg/kg (ES, 1990).

Recommendations: Available sampling data indicate elevated concentrations of VOCs (TCE; 1,2-DCE; and TPH) in the soil near this unit. TPH concentrations have ranged from 58 mg/kg to 26,000 mg/kg. The exact source of the contamination is unknown. PRC recommends additional soil sampling to determine the extent of the contamination. Ground-water sampling also should be conducted in this area.

REFERENCES

Argo-Tech, 1989a. Notification of Hazardous Waste Activities, February 17.

Argo-Tech, 1989b. National Pollution Discharge Elimination System (NPDES) Permit, September 29.

Argo-Tech, 1990. NPDES Permit Modification Request, submitted to Ohio Environmental Protection Agency (OEPA), January 19.

Argo-Tech, 1991. Materials distributed by Mr. Bruce Richardson, Argo-Tech, to PRC investigation team during VSI, August 28.

CT Consultants, 1990. Water Usage and Discharge Study, September 24.

Cushing, H.P., Leverett, Frank, and Van Horn, Frank R., 1931. Geology and Mineral Resources of Cleveland District, Ohio. U.S. Geological Survey Bulletin 818.

Engineering-Science, 1990. Remedial Investigation Report for the Former TAPCO Facility, Euclid, Ohio, July.

Marine Mechanical Corporation (MMC), 1990. Notification of Hazardous Waste Activities, November 27.

National Oceanic and Atmospheric Administration, 1990. Normals, Means, and Extremes.

Ohio Department of Natural Resources, Division of Water, 1952. The Ground-Water Resources in Cuyahoga County, Ohio, October, 1952.

Ohio Environmental Protection Agency (OEPA), 1984. Correspondence from OEPA to TRW regarding compliance with Ohio Revised Code (ORC) Chapter 3734, May 16.

OEPA, 1986. Correspondence from OEPA to TRW regarding financial responsibility, December 17.

OEPA, 1987. Correspondence from OEPA to TRW regarding financial responsibility, April 23.

OEPA, 1988a. RCRA Inspection, February 22.

OEPA, 1988b. Correspondence from OEPA to Environmental Protection Agency (EPA) regarding multiple identification numbers for TRW facility, March 4.

OEPA, 1988c. Correspondence from OEPA to EPA regarding multiple identification numbers for TRW facility, April 15.

OEPA, 1988d. Correspondence from OEPA to TRW regarding closure plan, July 4.

OEPA, 1988e. OEPA interoffice correspondence regarding closure plan, September 28.

OEPA, 1988f. OEPA interoffice communication regarding release report. April 1.

OEPA, 1988g. OEPA interoffice communication from Paul Anderson to Randy Meyer regarding TRW closure plan, undated.

OEPA, 1989c. Correspondence from OEPA to TRW regarding permit transfer, July 3.

OEPA, 1989a. Water-quality based effluent report, May 10.

OEPA, 1989b. Draft National Pollution Discharge Elimination System (NPDES) Permit to Argo-Tech, May 13.

OEPA, 1989d. Correspondence from OEPA to TRW regarding financial responsibility, July.

OEPA, 1989e. Correspondence from OEPA to TRW regarding EPA approval of closure plan, August 8.

OEPA, 1990a. Correspondence from OEPA to TRW regarding waste storage extension, May 3.

OEPA, 1990b. Correspondence to TRW regarding closure and withdrawal of Part A, September 17.

Propulsion Technologies, Inc. (PTI), 1990. Notification of Hazardous Waste Activities, November 27.

Resetar, 1991. Personal communication during VSI, August 28.

Richardson, Bruce. 1991a. Telephone conversation between Mr. Richardson, Argo-Tech, (216) 692-5313 and Andrea Thies, PRC, September 19.

Richardson, 1991b. Telephone conversation between Mr. Richardson, Argo-Tech (216) 692-5313 and Andrea Thies, PRC. September 30.

Richardson, 1991c. Telephone communication between Mr. Richardson, Argo-Tech, (216) 692-5313 and Tom Sinski, PRC, October 4.

Richardson, 1991d. Telephone communication between Mr. Richardson, Argo-Tech, (216) 692-5313 and Tom Sinski, PRC, October 9.

Schmidt, James J., and Alfred C. Walker, 1954. The Ground Water Resources of the Areas in the Vicinity of the Interchanges on the East-West Ohio Turnpike. State of Ohio Department of Natural Resources Information Circular No. 5.

SITEX Consultants Midwest, 1987. Report of Field Sampling and Laboratory Analysis for Baseline Environmental Study of TAPCO Facility, December.

TRW, 1980a. Notification of Hazardous Waste Activity, May 9.

TRW, 1973b. NPDES Permit No. OHD 0000281, December 27.

TRW, 1975. Correspondence from TRW to OEPA regarding NPDES Permit modification, July 8.

TRW, 1978. Correspondence from TRW to OEPA regarding NPDES Permit, May 9.

TRW, 1980. Part A Permit application, November 11.

TRW, 1982. Correspondence from TRW to OEPA regarding NPDES Permit requirements, February 17.

TRW, 1984. Correspondence from TRW to OEPA regarding compliance with ORC Chapter 3734, June 4.

TRW, 1987. Closure plan, November 30.

TRW, 1988. Letter to EPA, February 16.

TRW, 1988. Modified closure plan, September.

TRW, 1989. Correspondence from TRW to OEPA regarding NPDES Permit transfer to Argo-Tech., February 16.

TRW, 1990a. Correspondence to OEPA regarding closure of RCRA-regulated units, February 5.

TRW, 1990b. Closure Certification Report, July 13.

TRW/Argo-Tech, 1991. Information communicated by TRW and Argo-Tech representatives during VSI, August 29.

EPA, 1975. Communication from EPA to TRW regarding NPDES Permit violations, May 19.

U.S. Geological Survey, 1984. Ohio Ground Water Resources.

U.S. Geological Survey, 1974. Flood Prone Area Maps.

U.S. Soil Conservation Service, 1981. Soil Survey of Cuyahoga County, Ohio.

White, Gregory Jay, 1989. Letter from Mr. White, Fire Inspector, Ohio Department of Commerce, to Michael P. MacDonald, Union Camp Corporation, December 13.

Williams, Arthur B. 1940. Geology of the Cleveland Region. Cleveland Museum of Natural History Pocket Natural History No. 9.

ATTACHMENT A

EPA PRELIMINARY ASSESSMENT FORM 2070-12

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 1 - SITE INFORMATION AND ASSESSMENT

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
OH	OHD157367301

II. SITE NAME AND LOCATION

01 SITE NAME *(Legal, common, or descriptive name of site)*	02 STREET, ROUTE NO. OR SPECIFIC LOCATION IDENTIFIER				
Argo-Tech Corporation	23555 Euclid Avenue				
03 CITY	**04 STATE**	**05 ZIP CODE**	**06 COUNTY**	**07 COUNTY CODE**	**08 CONG DIST**
Cleveland	OH	44117	Cuyahoga	035	19
09 COORDINATES: LATITUDE 41°34'40"N	**LONGITUDE** 81°31'18"W				

10 DIRECTIONS TO SITE *(Starting from nearest public road)*

I90 east to 222nd St. Go west on 222nd St. Take right on Euclid Avenue. Facility is on the left.

III. RESPONSIBLE PARTIES

01 OWNER *(if known)*	02 STREET *(Business, mailing residential)*		
Argo-Tech Corporation	23555 Euclid Avenue		
03 CITY	**04 STATE**	**05 ZIP CODE**	**06 TELEPHONE NUMBER**
Cleveland	OH	44117	(216) 692-5313
07 OPERATOR *(If known and different from owner)*	**08 STREET** *(Business, mailing, residential)*		
09 CITY	**10 STATE**	**11 ZIP CODE**	**12 TELEPHONE NUMBER**

13 TYPE OF OWNERSHIP *(Check one)*

☒ A. PRIVATE ☐ B. FEDERAL: _____ *(Agency Name)* ☐ C. STATE ☐ D. COUNTY ☐ E. MUNICIPAL

☐ F. OTHER _____ *(Specify)* ☐ G. UNKNOWN

14. OWNER/OPERATOR NOTIFICATION ON FILE *(Check all that apply)*

☐ A. RCRA 3010 DATE RECEIVED: ___/___/___ MONTH DAY YEAR ☐ B. UNCONTROLLED WASTE SITE *(CERCLA 103 c)* DATE RECEIVED: ___/___/___ MONTH DAY YEAR ☐ C. NONE

IV. CHARACTERIZATION OF POTENTIAL HAZARD

01 ON SITE INSPECTION **BY** *(Check all that apply)*

☒ YES DATE 8/28/91 ☐ A. EPA ☒ B. EPA CONTRACTOR ☐ C. STATE ☐ D. OTHER CONTRACTOR

☐ NO ☐ E. LOCAL HEALTH OFFICIAL ☐ F. OTHER: _____ *(Specify)*

CONTRACTOR NAME(S): PRC Environmental Management, Inc.

02 SITE STATUS *(Check one)*

☒ A. ACTIVE ☐ B. INACTIVE ☐ C.UNKNOWN

03 YEARS OF OPERATION

1941 BEGINNING YEAR | Present ENDING YEAR ☐ UNKNOWN

04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED

Substances found on-site include solvents, electroplating sludge, waste paint, Otto fuel, aviation fuel, flammable liquids, oxidizing material, chlorinated oil.

05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION

The potential hazard to environment and/or population is low to moderate. Several hazardous substances (VOCs, PCBs, and metals) have been detected in the ground water and soil. The nearest well is located up-gradient of the facility.

V. PRIORITY ASSESSMENT

01 PRIORITY FOR INSPECTION *(Check one. If high or medium is checked, complete Part 2 - Waste Information and Part 3 - Description of Hazardous Conditions and Incidents.)*

☐ A. HIGH *(Inspection required promptly)* ☒ B. MEDIUM *(Inspection required)* ☐ C. LOW *(Inspect on time-available basis)* ☐ D. NONE *(No further action needed; complete current disposition form)*

VI. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF *(Agency/Organization)*		03 TELEPHONE NUMBER
Kevin Pierard	U.S. EPA		(312) 886-4448
04 PERSON RESPONSIBLE FOR ASSESSMENT	**05 AGENCY**	**06 ORGANIZATION**	**07 TELEPHONE NUMBER**	**08 DATE**
Tom Sinski		PRC EMI	(703) 556-2811	12/10/91 MONTH DAY YEAR

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
OH	OHD157367301

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES *(Check all that apply)*

- ☒ A. SOLID
- ☐ B. POWDER, FINES
- ☒ C. SLUDGE
- ☐ D. OTHER _____ *(Specify)*
- ☐ E. SLURRY
- ☒ F. LIQUID
- ☐ G. GAS

02 WASTE QUANTITY AT SITE
(Measures of waste quantities must be independent)

TON 710

CUBIC YARDS _____

NO. OF DRUMS _____

03 WASTE CHARACTERISTICS *(Check all that apply)*

- ☒ A. TOXIC
- ☒ B. CORROSIVE
- ☐ C. RADIOACTIVE
- ☐ D. PERSISTENT
- ☐ E. SOLUBLE
- ☐ F. INFECTIOUS
- ☐ G. INFLAMMABLE
- ☒ H. IGNITABLE
- ☒ I. HIGHLY VOLATILE
- ☐ J. EXPLOSIVE
- ☐ K. REACTIVE
- ☐ L. INCOMPATIBLE
- ☐ M. NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE	654,960	pounds	toxic
OLW	OILY WASTE	16,275	pounds	toxic
SOL	SOLVENTS	39,189	pounds	toxic, highly volatile, ignitable
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS	710,369	pounds	toxic, corrosive, volatile, ignitable
IOC	INORGANIC CHEMICALS			
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS			

IV. HAZARDOUS SUBSTANCES *(See Appendix for most frequently cited CAS Numbers)*

CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
SOL	Freon	0076-13-1	drum		
SOL	Perchloroethane	127-18-4	drum		
SOL	1,1,1-trichloroethane	25323-89-1	drum		
SOL	Xylene	1330-2-7	drum		
SOL	Mek/dioxane Mix	0078-83-3 0123-91-1	drum		

V. FEEDSTOCKS *(See Appendix for CAS Numbers)*

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS			FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION *(Cite specific references; e.g., state files, sample analysis, reports)*

Preliminary review of U.S. EPA and Ohio EPA files. Visual site inspection, August 28, 1991.

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
OH	OHD157367301

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ☒ A. GROUNDWATER CONTAMINATION — 02 ☒ OBSERVED (DATE: 4/89) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

Engineering-Science reported ground water contaminated with VOCs, PCBs, and metals was detected in several monitoring wells located on the site.

01 ☒ B. SURFACE WATER CONTAMINATION — 02 ☒ OBSERVED (DATE: 10/31/85) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

TRW (currently Argo-Tech Corp.) reported a release of torpedo fuel (Otto fuel) to a wetland area on the site. The area was remediated and RCRA closed in 1990.

01 ☒ C. CONTAMINATION OF AIR — 02 ☐ OBSERVED (DATE: _____) ☒ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 0-50 04 NARRATIVE DESCRIPTION

Wastes generated at facility include volatile solvents. Facility workers would be at the highest risk of exposure.

01 ☒ D. FIRE/EXPLOSIVE CONDITIONS — 02 ☐ OBSERVED (DATE: _____) ☒ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

The facility handles many volatile and ignitable hazardous wastes.

01 ☐ E. DIRECT CONTACT — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

Access to the site is restricted.

01 ☒ F. CONTAMINATION OF SOIL — 02 ☒ OBSERVED (DATE: 10/85-4/89) ☐ POTENTIAL ☐ ALLEGED
03 AREA POTENTIALLY AFFECTED: 200-300 (Acres) 04 NARRATIVE DESCRIPTION

Three releases to soil of hazardous constituents were reported in 1985, 1987, and 1988. In addition, soil borings taken by Engineering-Science in 1988 and 1989 indicate soil on much of the facility's grounds is contaminated with VOCs, PCBs, total petrohydrocarbon, and metals.

01 ☐ G. DRINKING WATER CONTAMINATION — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

The area is supplied by the Cleveland municipal water supply.

01 ☒ H. WORKER EXPOSURE/INJURY — 02 ☐ OBSERVED (DATE: _____) ☒ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 0-50 04 NARRATIVE DESCRIPTION

There are many hazardous constituents at the facility that a worker could be exposed to or cause injury if not managed properly.

01 ☐ I. POPULATION EXPOSURE/INJURY — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 0 04 NARRATIVE DESCRIPTION

None.

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE: OH	02 SITE NUMBER: OHD157367301

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 ☒ J. DAMAGE TO FLORA — 02 ☐ OBSERVED (DATE:_____) — ☒ POTENTIAL — ☐ ALLEGED
04 NARRATIVE DESCRIPTION

Several areas at the facility have soil and ground water that is contaminated. The contamination could cause damage to nearby flora.

01 ☐ K. DAMAGE TO FAUNA — 02 ☐ OBSERVED (DATE:_____) — ☐ POTENTIAL — ☐ ALLEGED
04 NARRATIVE DESCRIPTION

None.

01 ☒ L. CONTAMINATION OF FOOD CHAIN — 02 ☐ OBSERVED (DATE:_____) — ☒ POTENTIAL — ☐ ALLEGED
04 NARRATIVE DESCRIPTION

Contamination of the food chain is possible since soil and ground water at several locations on the site are contaminated.

01 ☐ M. UNSTABLE CONTAINMENT OF WASTES — 02 ☐ OBSERVED (DATE:_____) — ☐ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

None.

01 ☒ N. DAMAGE TO OFF-SITE PROPERTY — 02 ☐ OBSERVED (DATE:_____) — ☒ POTENTIAL — ☐ ALLEGED
04 NARRATIVE DESCRIPTION

Migration of contaminated ground water could damage off-site property and property values.

01 ☒ O. CONTAMINATION OF SEWERS, DRAINS, WWTPS — 02 ☐ OBSERVED (DATE:_____) — ☒ POTENTIAL — ☐ ALLEGED
04 NARRATIVE DESCRIPTION

The Textron Kolene wastewater treatment system discharges approximately 15,000 to 20,000 gallons per day of treated wastewater to the Euclid sanitary sewer system.

01 ☐ P. ILLEGAL/UNAUTHORIZED DUMPING — 02 ☐ OBSERVED (DATE:_____) — ☐ POTENTIAL — ☐ ALLEGED
04 NARRATIVE DESCRIPTION

None.

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

III. TOTAL POPULATION POTENTIALLY AFFECTED: 0-50 (site workers)

IV. COMMENTS

Site is contaminated in several areas. Suggest a CMS be conducted for this site.

V. SOURCES OF INFORMATION ***(Cite specific references; e.g., state files, sample analysis, reports)***

Preliminary review of U.S. EPA and Ohio EPA files. Visual site inspection, August 28, 1991. Engineering-Science remedial investigation report submitted in 1990.

ATTACHMENT B

VISUAL SITE INSPECTION SUMMARY AND PHOTOGRAPHS

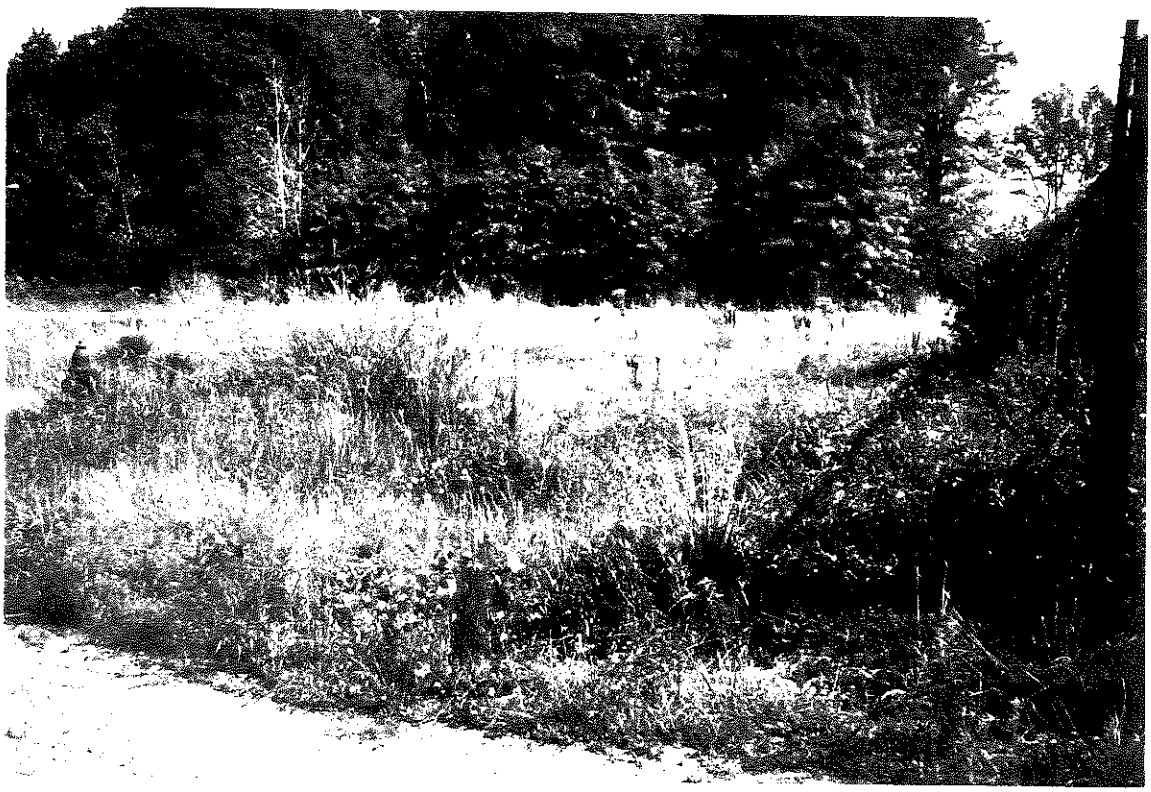
VISUAL SITE INSPECTION SUMMARY

Argo-Tech Corporation
(Formerly TRW, Inc.)
23555 Euclid Avenue
Cleveland, Ohio 44117
OHD 004 179 453

Date:	August 28, 1991
Facility Representatives:	
Inspection Team:	Tom Sinski, PRC Environmental Management, Inc., (703) 556-2811 Sharon McLellan, PRC Environmental Management, Inc., (703) 883-8821
Photographer:	Sharon McLellan
Weather Conditions:	Warm, 80-85°F, sunny
Summary of Activities:	The visual site inspection began at 9:00 a.m. at the Argo-Tech facility in Euclid, Ohio. Tom Sinski and Sharon McLellan reviewed the purpose of the visit and the overall U.S. EPA Region 5 Environmental Priorities Initiative program to the Argo-Tech and TRW representatives. Argo-Tech and TRW representatives then gave an overview of the history of the facility and the operations taking place at the plant. Waste generation, storage, and disposal were discussed at length. Photographs taken during the VSI are presented in the following pages. A tour of the facility began at 11:27 a.m.. The PRC team inspected the SWMUs and AOCs at the facility. At approximately 1:57 p.m., the PRC, Argo-Tech, and TRW representatives returned to the conference room for debriefing. After a brief exit interview, the PRC team left the facility at 2:10 p.m.

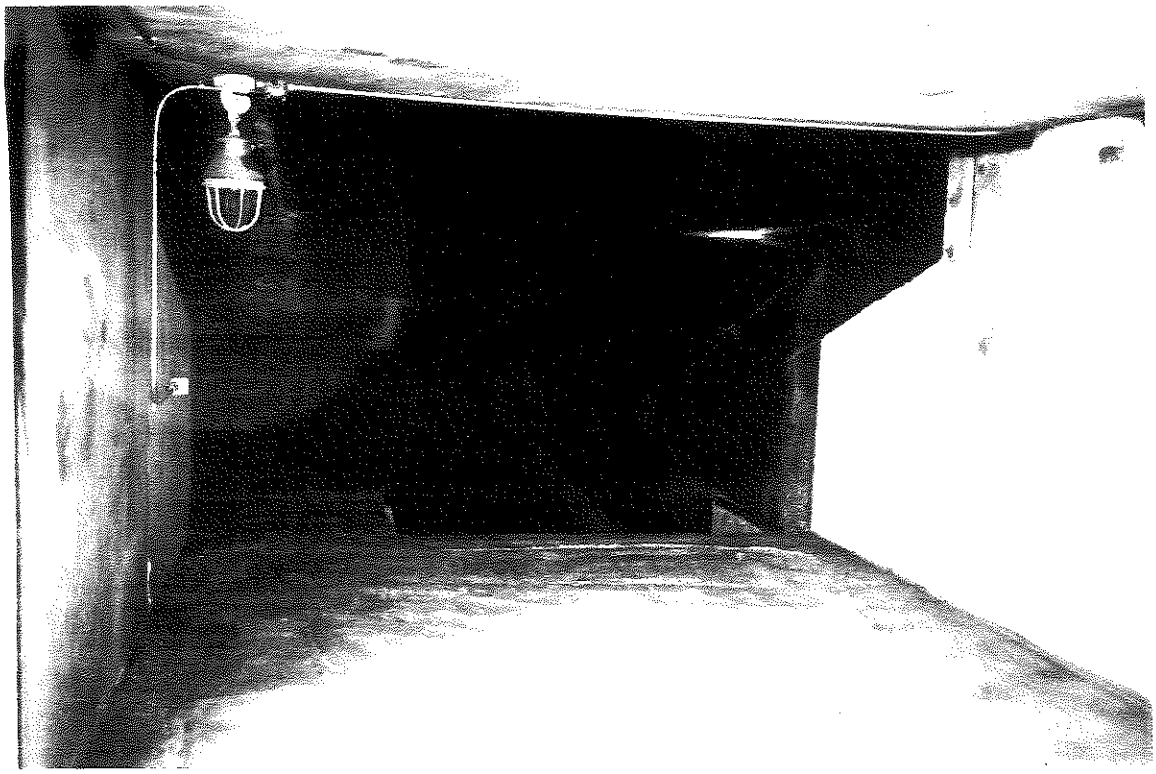
Photograph No. 1
Orientation: North
Description: Former building 49 area now occupied by grass field

Location: SWMU 1
Date: August 28, 1991



Photograph No. 2
Orientation: East
Description: Former UST area now covered with grass

Location: SWMU 1
Date: August 28, 1991

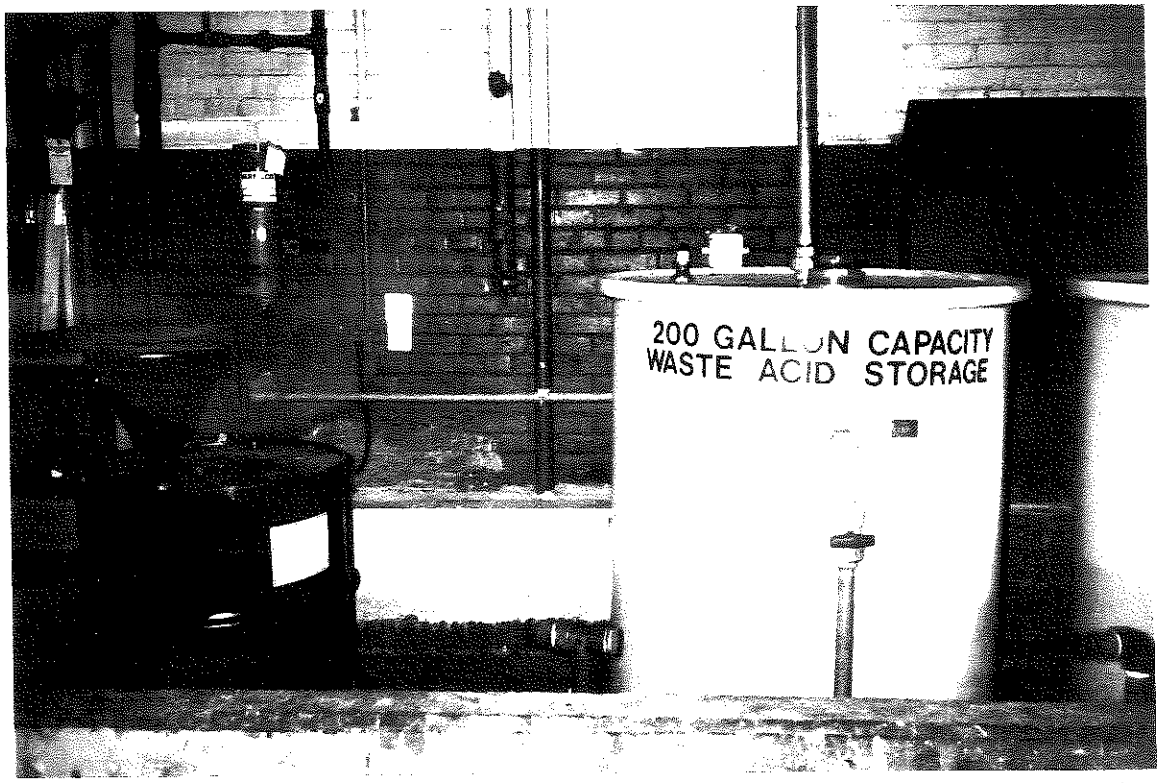


Photograph No. 3
Orientation: East
Description: Inside building 45

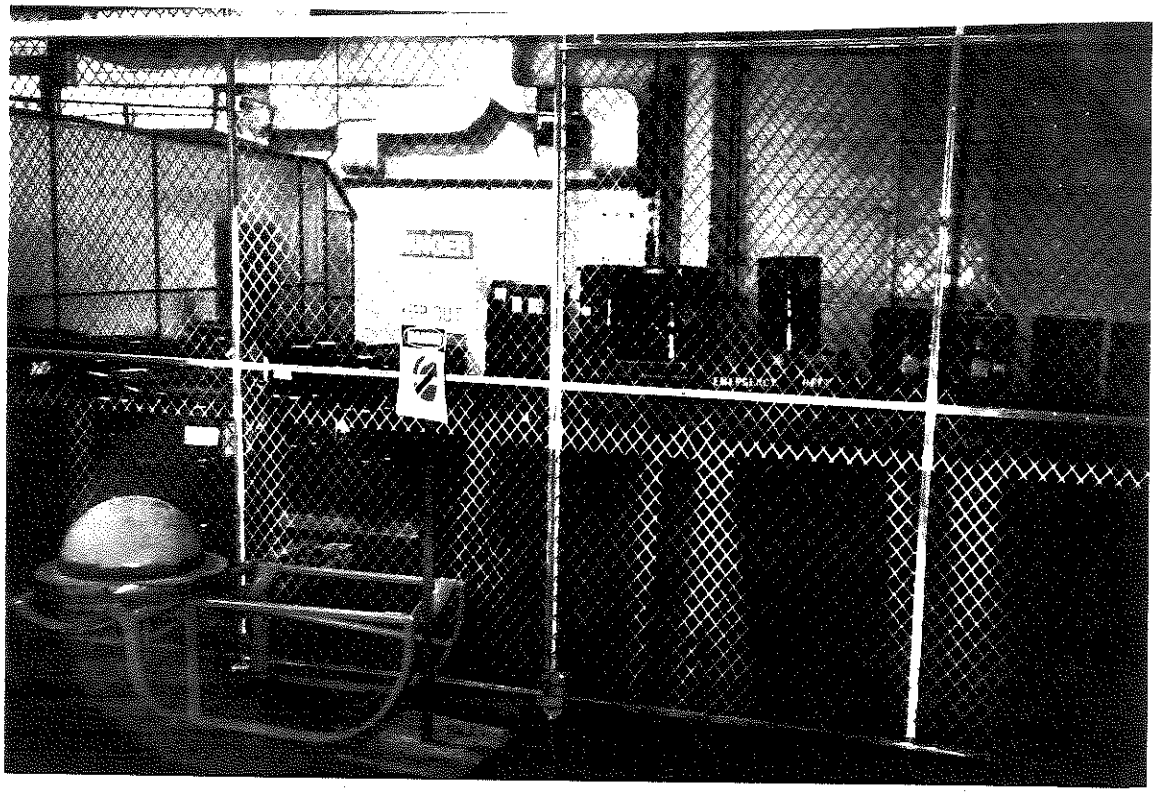
Location: SWMU 2
Date: August 28, 1991

Photograph No. 4
Orientation: West
Description: Outside building 45

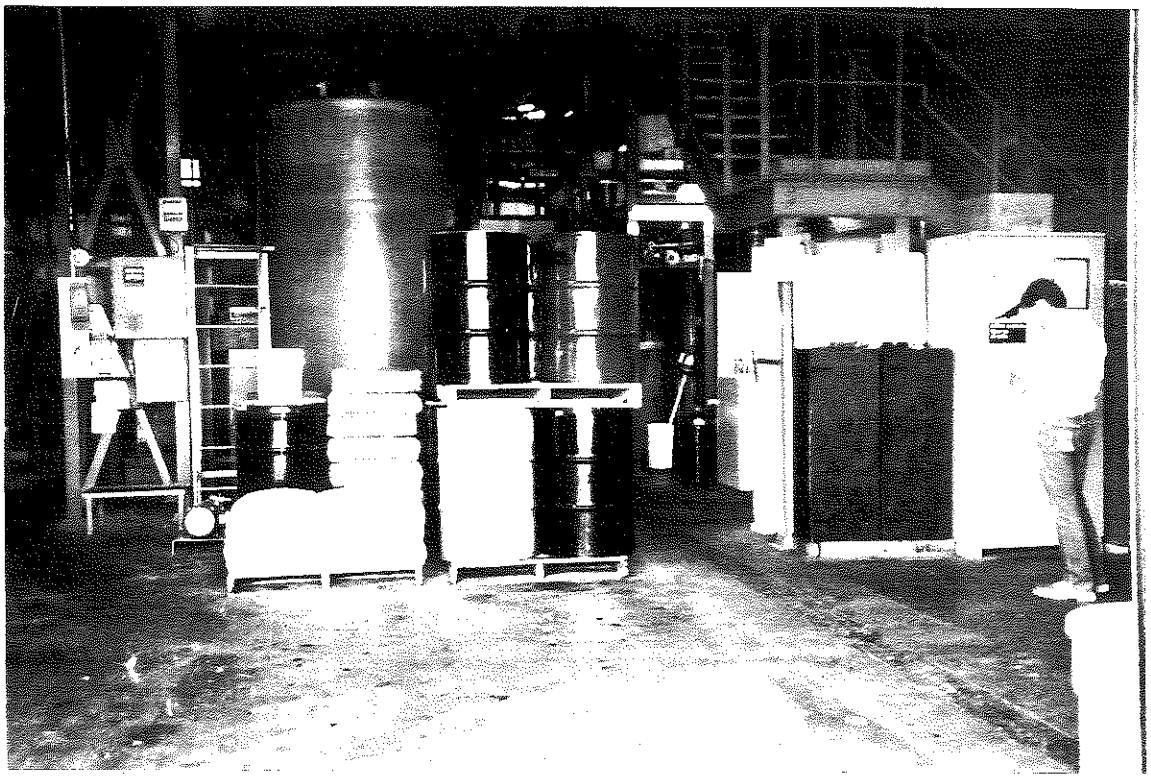
Location: SWMU 2
Date: August 28, 1991



Photograph No. 5 **Location:** SWMU 4
Orientation: North **Date:** August 28, 1991
Description: Satellite drums and temporary storage tank surrounded by concrete containment wall

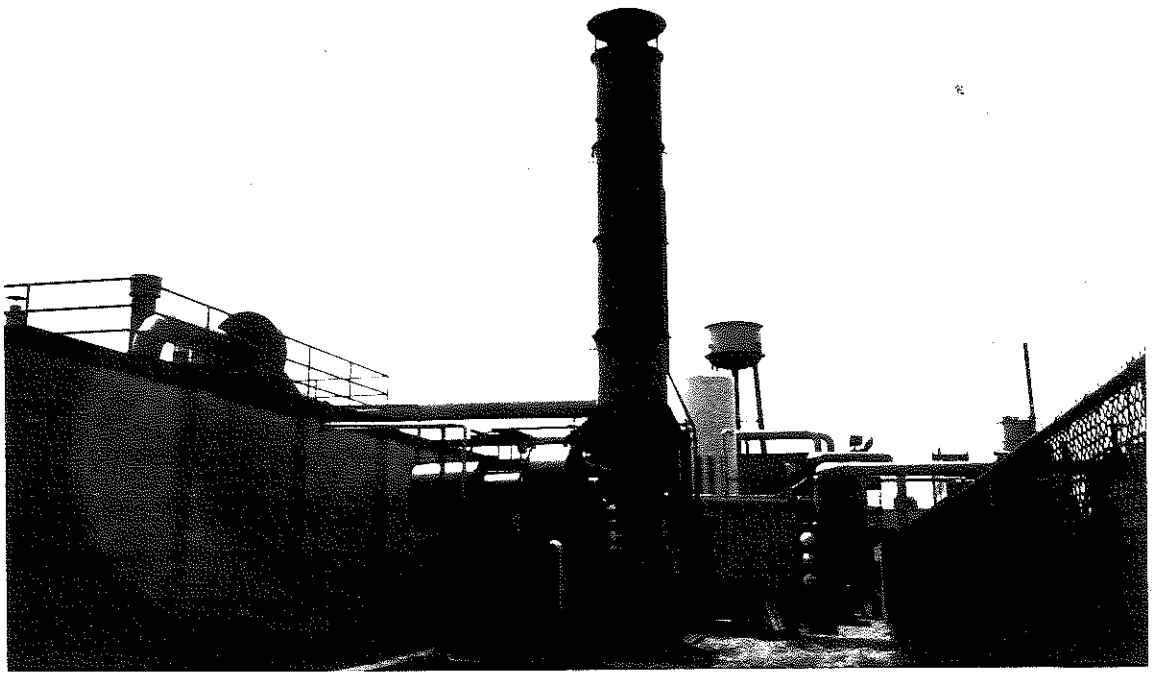


Photograph No. 6 **Location:** SWMU 5
Orientation: South **Date:** August 28, 1991
Description: Airfoil Forging Textron hazardous waste drum storage area



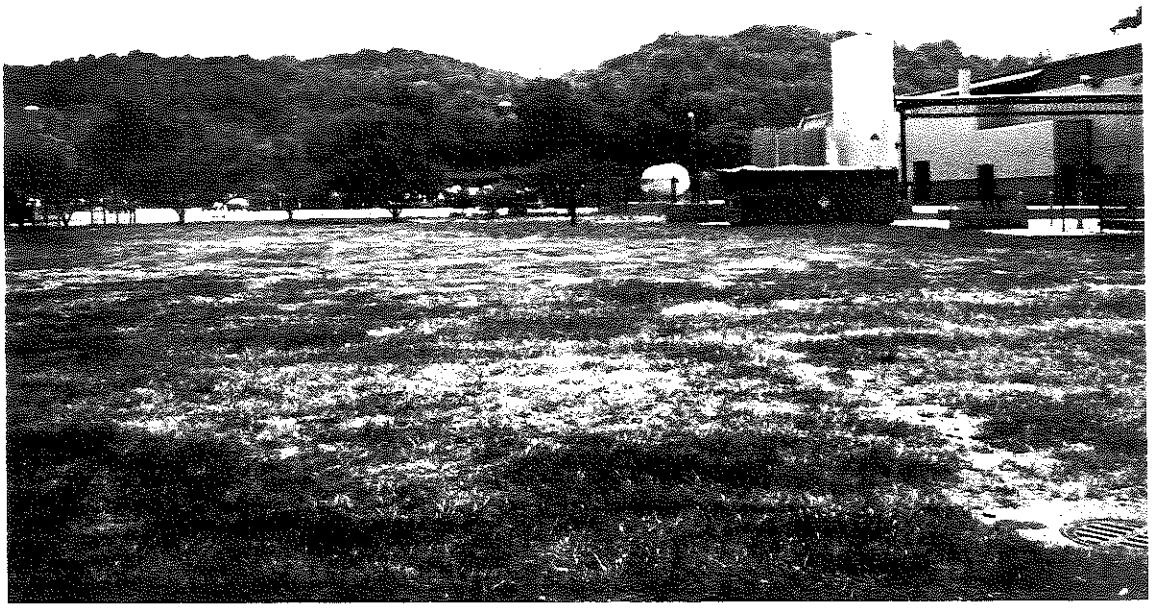
Photograph No. 7
Orientation: West
Description: Waste drum storage area; trench drain to the right

Location: SWMU 6
Date: August 28, 1991



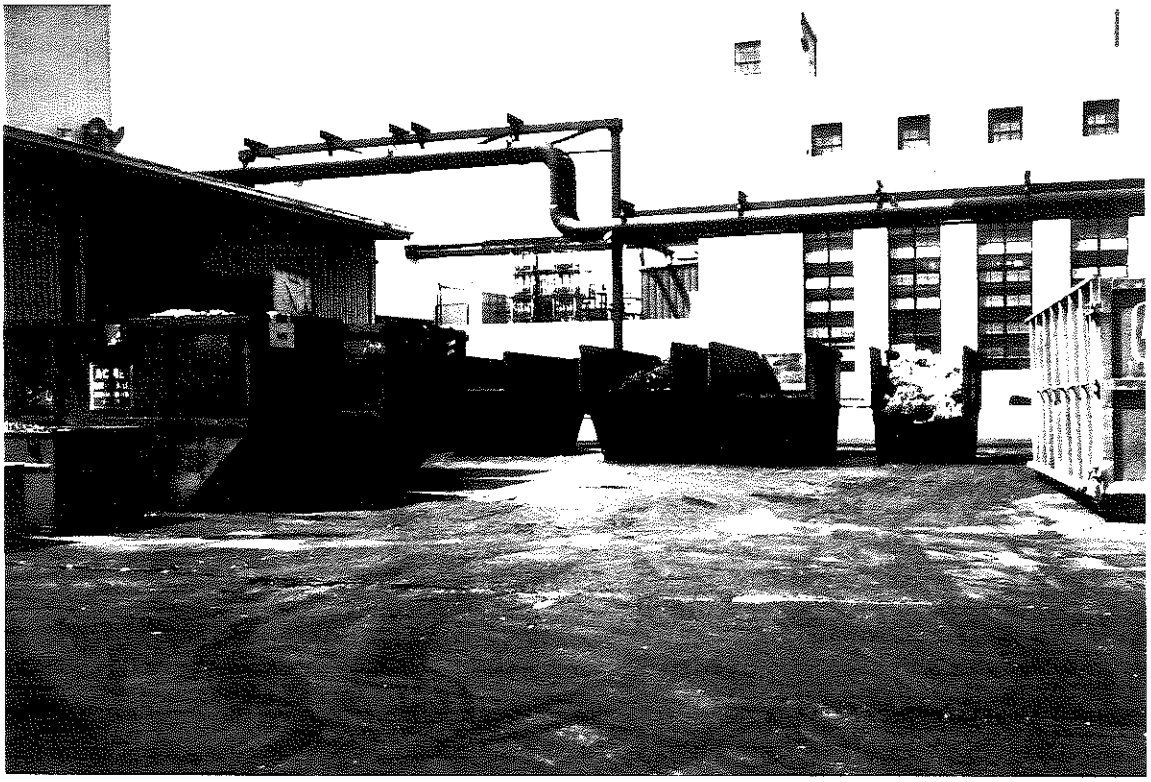
Photograph No. 8
Orientation: West
Description: Cyanide afterburner

Location: SWMU 7
Date: August 28, 1991



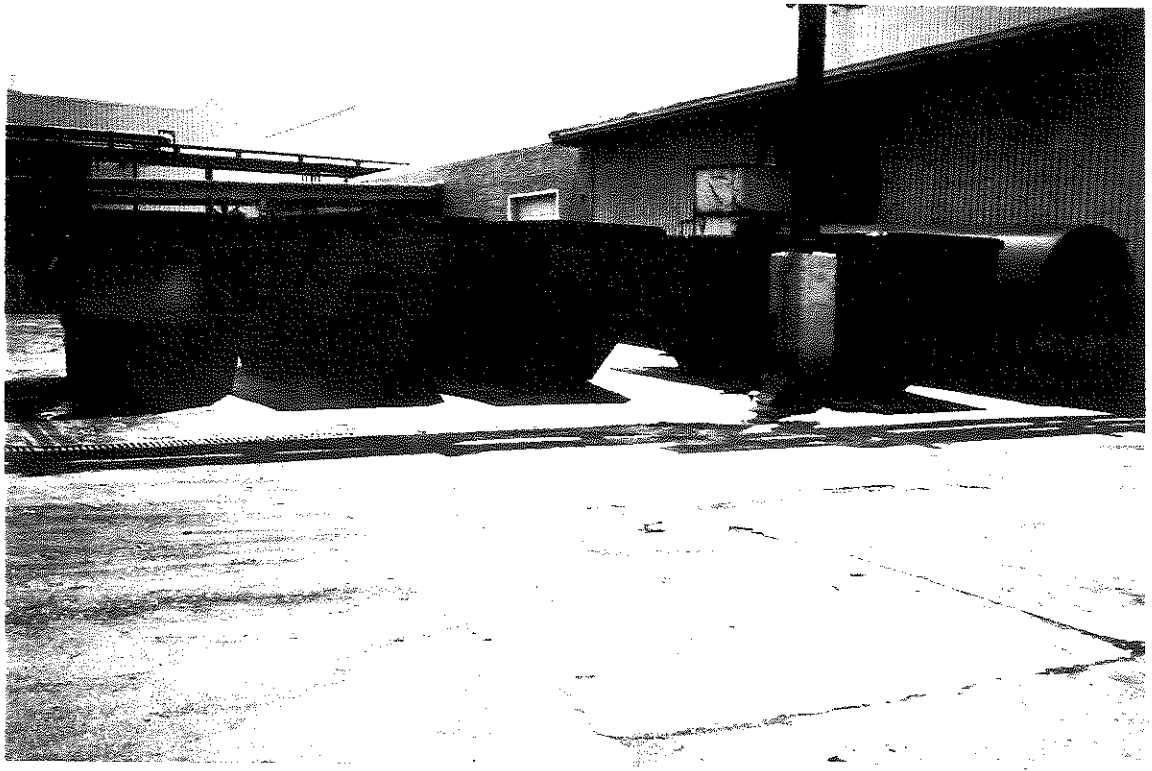
Photograph No. 9
Orientation: South
Description: Former concrete block filter area located to the right in the photograph

Location: SWMU 8
Date: August 28, 1991



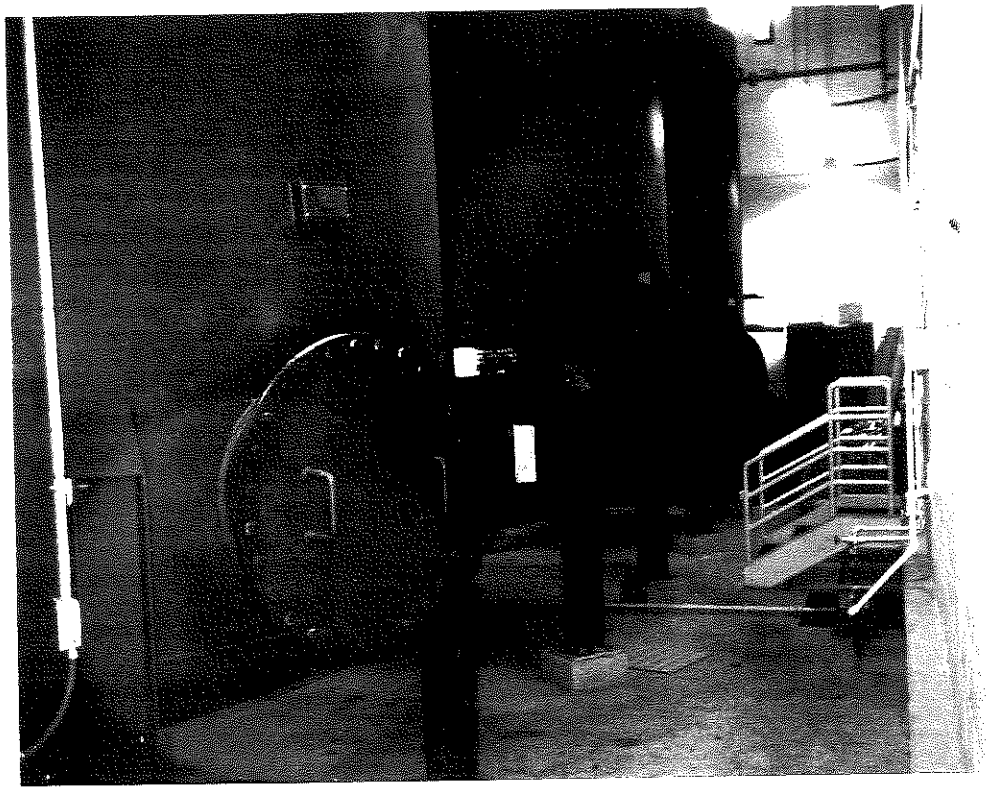
Photograph No. 10
Orientation: North
Description: Chip dock area; oil on surface

Location: SWMU 9
Date: August 28, 1991



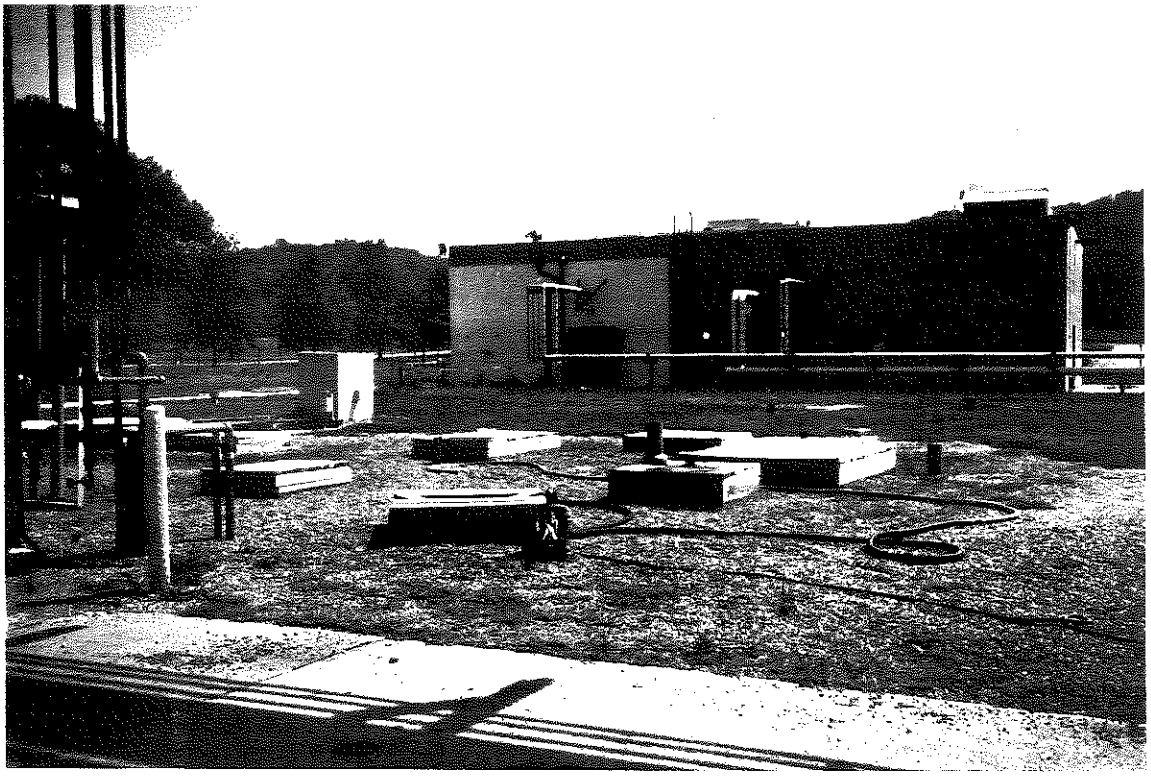
Photograph No. 11
Orientation: South
Description: Chip dock area; trench drain in front of dumpster

Location: SWMU 9
Date: August 28, 1991

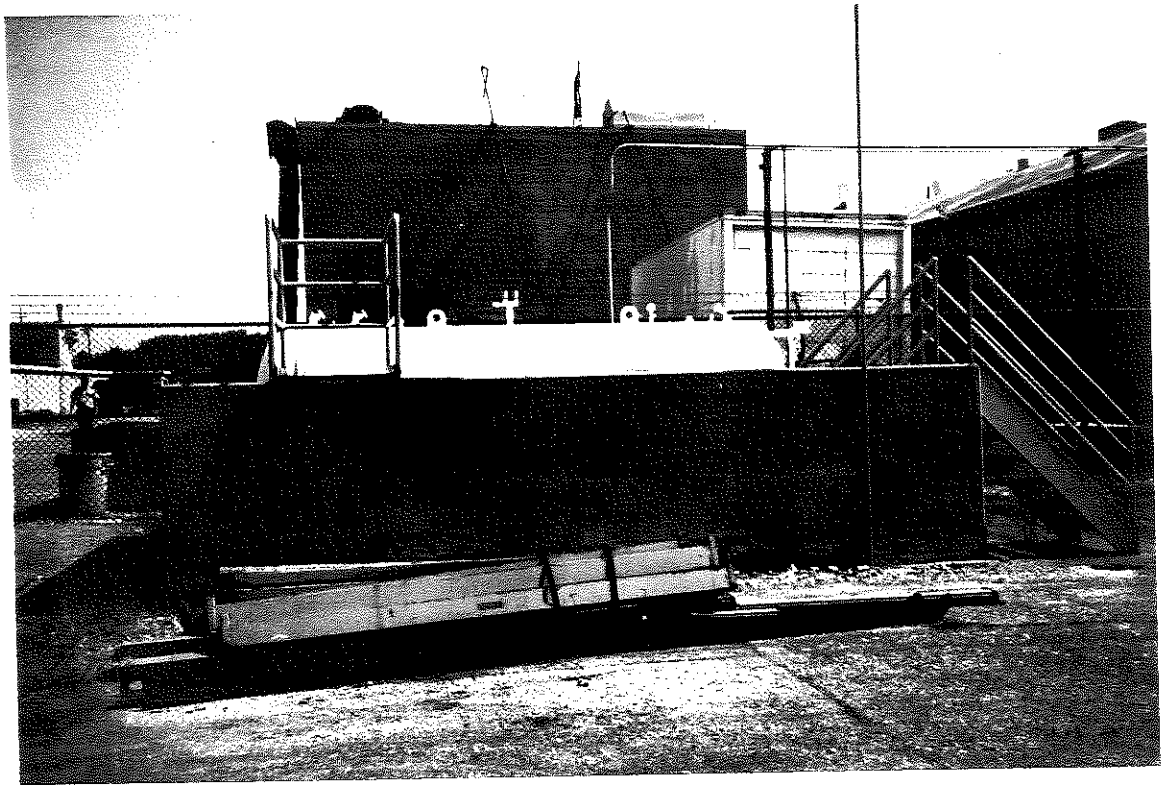


Photograph No. 12
Orientation: North
Description: Bulk waste Otto fuel storage

Location: SWMU 13
Date: August 28, 1991



Photograph No. 13 **Location:** SWMU 17
Orientation: Southeast **Date:** August 28, 1991
Description: JP-4 underground storage tank farm; former UST farms (SWMUs 18-21) also located in this area



Photograph No. 14 **Location:** SWMU 25
Orientation: South **Date:** August 28, 1991
Description: Area behind building 24

ATTACHMENT C

VISUAL SITE INSPECTION FIELD NOTES

(10) TRW VSI TMS Sharon McClellan

9:00 A.M 8/29/81 Arrived work
Sharon McClellan
Met with Bruce Richardson
(Argo Tech) and andy Reactor (TRW)
at 9:18 A.M..
TRW has no manufacturing
facilities on-site since 1986.
Only have a coal combustion
unit. also met by Mark Ross
(Argo, env. supervisor).
ID # on letter is not
Argo Tech's.
TRW. has corresponded with
Less Perrard on closure
matters.
Last RCRA audit 1988 Paul
Anderson (OEPA).

TMS (11)

Purchased by Argo Tech
10/86.
Submitted closure plan
11/87.
12/88 Approved closure plan
OEPA.
8/89 - OEPA/USEPA approved the plan.
9/5/89 Paul Anderson performed
RCRA inspection
Closure completed 7/3/90.
Request change from TSD
to large quantity generator.
OEPA approved closure on
9/7/90 OEPA approved
change from TSD to large
quantity generator & approved
the closure.
9/6/90 Closure inspection by
Paul Anderson (OEPA).

(12) 1941 Agricultural Conf Md

Started bldg in 1941.
Govt bldg. Started to make airplane values.
All bldg's ~~p~~ completed by 1967. ~~Not~~ many changes since then.
Used to be TRW's corporate headquarters.
Manufactured mainly aircraft parts. Other operations heat treating, plating, torpedo testing, metal finishing.
Argo Tech orginally made aircraft pumps. Lepton made Compression Components.
Since 1987 several new companys have become tenants.
H.A located here until sale of property.

TRW (1)

Total area 194 acres.
1.7 million sq. ft under roof.
Now down to 154 acres.
Currently makes aircraft fuel pumps (Argo) compressor blades for jets (Lepton) PTI torpedo and missile testing manufacturing.

Upon closure Argo tech moved storage to WWTP.
Bldg 45 not used since closure.

Lepton stores HW at 2B dock.
WWTP has VTDOS permit outfall to storm sewer.
Manufacturing processes discharge to Sanitary sewer.
602 + 001 outfalls only permitted outfalls.

(14) Sanitary sewer permit TMI from Euclid WWTP.
Two outfalls (S1 + S2).
On Cleveland's municipal water. Rotterdam pump station.
ES. Report no municipal wells within 3 miles.
Bounded on east by Railroad electric. Residences just to the southeast of the facility.
Wetland to the east of Bldg 19. Unknown if it is regulated by Corps of Eng.
Storm sewer discharges to Lake Erie.
IGC. bought plating area Keptron owned all originally and discharged to Cryo's WWTP. IGC bought part

Bay 64×64
of plating area and also (15)
enlarged. Plating area
now encompass 5 bay area.

Waste generated: Cryo tech mostly machining waste. Metal chips, turnings (recycled).
Solvents (32 vapor degreaser in use) used for cleaning.
Also waste oils from machine.
Paint Coatings
Hydrocarbon kerosene fuel.
Aviation fuels (JP4). Have UST for engine and waste fuel.
F006 filter cake waste from WWTP.
Airfoil - mostly titanium forgings
Wastes include coatings (chemical)
Machine oil - goes to cryo tech

. for bulk shipment. TMd

Xolene (molten NaOH) to remove debris off titanium.

Textron cutting oil for recycled other waste oils stored & shipped by Argo-Tech.

Non-hazardous waste handled same as Argo-Tech.

Hazardous waste handled separately.

On original part A. area near Bldg 31 had 1 UST (separator 10,000 gal tank) removed from port because of less than 90 day storage.

Waste oil ~~area~~ listed as a precautions. Tested by Argo-Tech for Hazardous waste.

Bldg 45 unknown TMx of rinsed after the floor was partially removed.

Glenn D ES

Releases - 4 responses to the national release center

2/11/82 Transformer incident notified NRC + USEPA Westlake Don Papke + Ken Schultz. Transformer inspection plate blew off.

Cleaned up the substation. 1985 50-60 transformers removed and 430 PCB capacitors up until 1987.

Bldg 49 10/31/85 notified NRC. and OEPA for an oil sheen on the swale.

7/1/87 notified NRC of ~~an~~ a historical spill of JP-4. for the general area.

(18) Questionaire from Ken Schultz. OCPW

11/4/87 Report to OEPA NRC of a general entire site spill of solvents, fuels, PCB's. ES prepared a R1/FS on 7/90 of entire site.

Remediation of area still containing. Area near bldg 32+31 TP-4 in soil. Also PCB's in soil from a heat exchanger.

Also in the plating area (Bldg 4) deep soil borings to check for contamination. E-S has done all remediation studies since 1987.

Bldg 31. No evidence of migration to swale to the east. Mailed a copy of E-S

TMS

Remedial investigation Study (19)

N.W. flows due north no migration off site has been found at down gradient wells.

Water table appears to be highly variable. Soil deposits also variable. TRW now has Dick Stritchey working on remediation.

3 main areas of remediation

① TP-4 UST bldg 32-31

② Plating Area Bldg (4)

③ Chip dock area has UST. Bldg (35)

Bldg 19. Mercury molding. 1950's. After 1960's changed monitoring mercury much more closely monitored.

(20) Currently characterizing sites for remediation. TMS

Tour commenced at 11:27
Bldg 49 area. Fenced area
3 med bldg's 2 small
Bldg's.
Bldg 49 demolished, open
grassy field.
Separator tank and 3
acid tanks removed.
H.W Monitoring well just
to west of bldg 49.

Bldg 45, previously used
as a rifle range.
Used for H.W. Stored
(Chromium sludge). Material
stored for a long time.
Never used by Argo Tech.

TMS (21)

storm water drain.
North side Floor appeared clean and
resurfaced.
Trench at base of ~~wall~~ door
filled in.
Contained mostly drums
of plating sludges which
were removed under closure
plan.
South side of Bldg 45:
Same as north side. Trench
in front of door has
been filled. Cindy Lester
said no cracks completely
through the base. Room
smelled like mothballs

Inside 2B-Dock just east 1 200 gal. acid storage tank 1 200 gal caustic tank 1, 55 gal sat. drum. Pump to tanker truck then to WWTP. Generated from Al. etching

Dock - 2B TRW area S.E corner occupied by milling machine. Concrete floor some cracks.
Adjacent area to west used by Textron is 9 ft fenced and contains drums of waste Kolene and leaded coating. Flooring is brick.

C14 Plating area. Bulk plating tanks for copper plating, anodizing. Tanks are raised and placed in poured concrete diked areas with leak detectors. All process water goes to waste treatment plant.
Cyanide detection unit.

C15 Wastewater treatment system and H.W storage. Floor is sloped. And has longitudinal grated floor drains which drain to a sump. Border to outside is not diked. H.W. drums. solvents, still bottoms, methanol,

(24) 8 drums on ~~the~~ palettes TMS
(4 per). Palettes on ~~top of~~ those drums. 5 drums on ~~top of those~~ palettes.

WWTF effluent 50,000 gpd
150,000 gpd. Max capacity
500,000 gpd. Treats plating
operation, metal finishing
etching, acid washes. all
process water.
Computer controlled.
pH set point from clearwell
8.5.
Separate tanks for treating
Chrome, cyanide, pH adjustment.
Outfall monitored for pH,
flow, cyanide (weekly), metal (weekly).
Computer records all
info.

TMS (25)

Clarifier blown down once
a week.
Acid/Caustic waste go to pH
adjustment tanks.

TP-4 tank farm.
gravel bed. 2 virgin
tanks (10,000 gal). 1 dump
~~tank~~ 10,000 gal). 1 oil/water
separator (10,000 gal). tank
trucks empty dump tanks
once/month.
inlets to dump tank
lines underground.
• Clean fuel tanks to the
east of tank farm.
~30 drums (55 gal)

Area
Bldg 33A TML

Cyanide afterburning tower generated from torpedo test station.
~~Torpedo test~~
Granted air registration status. Also takes liquid waste torpedo fuel. Waste liquid bldg 30.
3 (5000 gal) tanks hold waste otto fuel.
Shipped back to navy not treated by unit.
Concrete floor with drains leading back into tanks

Sewer outside of JP-4 tank farm goes to storm sewer

TML

Chipped Dock Area outside. Dumpster of scrap metal parts, cuttings. asphalt floor. very oily. All metals are recycled. Empty drums on south end of dock.
Drain from dock goes to oil water separator

Tour concluded at 1:57 p.m.
Debriefing until 2:10 p.m.

8/29/91

Thursday Aug. 29, 1991

PS/USI (c) TRW (Argo/Tech)
23555 Euclid Ave.
Cleveland (Euclid), OHIO

Weather Overcast, 70-80°F,
winds SW 5-15mph.

MCEM Personnel Conducting VSI
S.A McLellan
T Senske

Other Personnel Assisting:
- Bruce Richardson - Argo Tech
- Andy Reseter - TRW
- Mark Frost (Argo Tech.

3)

8. Garage Area Haz. Waste Storage

AOC:
- Transformers (oil-filled)
- Chemical Storage area
- Recommend cleaning of chem. storage area.
- Transformers should be sampled for PCBs

Confidential Area Closeby.

Days notes taken by S. McLellan. Addtional notes taken by T. Senske.

Nov 2, 1987 - Closure plan submitted

[illegible] OEPA Closure plan accepted [illegible] OEPA [illegible] OEPA Status [illegible] to go through USEPA.

8/8/89 OEPA USEPA accept. Closure.

8/28/89 - [illegible] Closure

9/5/89 - Anderson (OEPA) RCRA insp.

[illegible] Closure complete at site.

[illegible] - letter [illegible] TSD + [illegible] Continues to investigate [illegible] from 1986.

[illegible] states that they have [illegible] approved closure

9/7/90 - OEPA changed status from TSD to generator (Paul Anderson) from Roppo (OEPA).

9/[illegible]/90 - Anderson + Williams (OEPA) Closure inspection

Nov. 90 - Rpt. on P.A. for site (OEPA).

<u>History</u> of facility.
- provided from [illegible]

Prior to 1941 - agricultural
1941 - started construction
[illegible] values - continued construction

Lithium iodine batteries by TTI.

* Water treatment facility in Bldg. F (D-15 on sketch).

Textron Oxygen ~~day~~ ~~storage~~ SE dock area.

Present: only process into storm sewer.

Outfall 002 - NPDES permit permit into sanitary ~~storm~~ sewer; releases to 001 ~~the~~ note E 222nd St. —

* City of Euclid sanitary sewer system ~~and~~ + storm sewer system.

* City of Cleveland water system (Nottingham Station).

* Rail Road on NW of property is Norfolk & western.

* No wells within a 5 mi radius (per ES report): all supplied by Cleveland.

Lincoln Electric - NW

8/29/91

Awful machining oil stored at digester at D15 area —

+ Will supply an annual generator report for 1990.
- received.

Spills (4 National Responses)

~~1 Bldg. 49~~ (Shn)

1. Feb. 11, 1982 regarding transformer incident notified USEPA, NRC & OEPA - Transformer inspection plate blew off transformer. Cleaned.

1984-1985 - all PCB containing transformers removed from facility (+ PCB containing capacitors).

2. Bldg. 49 Investigation 10/31/85. - NRC notified + OEPA notified.
- Oil sheen on swale comming from Bldg. 49 (Auto fuel - NPDES) area.
- See ES report on study.

3. July 1, 1987 - NRC notified regarding JP-4 material in tank farm area.
Historical spill from leaking tank found during the investigation.

(a)

Bldg #41 - mercury contamination due to mercast program in the 1970's.

* All areas of contamination have primarily been identified to date must see E.S report.

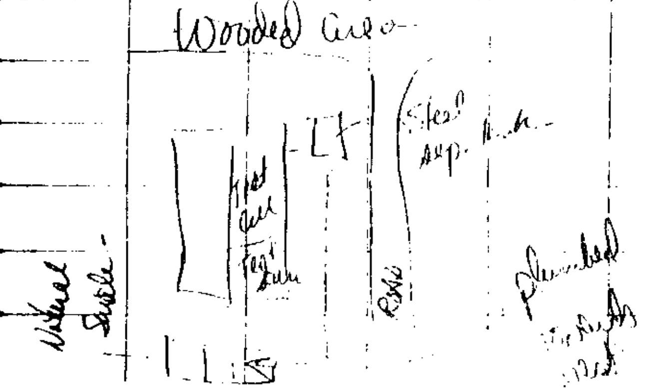
No offsite migration of GW contaminants - GW flows S to North.

11:30 Start site walkthrough

90

Photo #8 + 9.
Bldg 48 area (area of Haz waste storage) Presently Bldg gone + grass covered. - All power service shut off. All tanks removed area secured w/ fence + gate. Looking North from gate. Towards Bldg 48 + wooded area

[Former Sketch of area:]



?-B dock Area
- No photo due to defense operations Presently run by [illegible].
Concrete floor. No forging machining operations in this area now.

AA-2 Airfoil Forging (Section just southeast of TRW's place of dry waste storage - Concrete flooring - area fenced off + locked. Stored in 55 gal drums

Ceramic slips, PCB's, Caustic [illegible] (salt/solid), etc.

Photo #14 : Airfoil forging drum storage - AA-2 area looking S.W.

Plating Area - large tank (TCE) " Concrete cased, diked w/ leak detection system

3-Scrubbers: in plating area over baths. Water from scrubbers is put into waste management treatment.
Cyanide
Cr + Acid alkali

NDI Cyanide detection

Effluent discharge
250,000 g/day to
50,000 g/day (dry flow)
output to outfalls.

Systems is at ½ capacity
(can handle 500,000 g/day)
treats all waste flows
plating ...

- Manual backup on W.W.T.
+ a computerized system
runs normally. Alarm
system + provide a notice
of system malfunction.
+ double staging system for
W.W.T.

24-hour - monitoring
* pH, flowmeter + weekly
monitoring of O & G
metals, etc.
+ Clarified blowdown
once per month.

* UST near Bldg. 7 - Reference
tank (~2000 g fiberglass)
tank: used ~1/per week
as wash water overflow from
torpedo. Tested weekly
by sticking. Retro tested in
1986 by TRW.

* UST area - JP4 area
- 3 10,000 g - 1 plant / 1 - hwy waste ? Dump
1 - 20,000 Oil water sep.

Movable container lacked
drain in last tank
[illegible] leaking [illegible]

Drum [illegible]
off sump pump on
loading dock for [illegible]
waste oil photo #20
[illegible] east [illegible]
outlet.

photo #20: off concrete
dock [illegible] area looking
[illegible]

photo #21
Chip dock area
Scraps metal storage prior
to recycling.
[illegible]
looking towards Bldg #28.

(Same)
photo 22: empty drum storage
area South of Chip dock
[illegible] material.

photo #23
Trench drain [illegible] oily
waste from metal scrap
goes to an oil separator
Metal storage area looking South

ATTACHMENT D

SITE AVERAGES FOR SELECTED CONTAMINANTS

Site Averages for Selected Metals in Ground water

Metal	Total Metal Average
Arsenic	0.038
Cadmium	0.003
Chromium	0.180
Lead	0.074
Mercury	0.00022

* Averages are reported in ppm.

Site Regional Averages for
Selected metals and Cyanide in Soils*

Metal	Site Average	EP Toxic Threshold Levels**
Arsenic	18.0	100
Cadmium	0.5	20
Chromium	21.8	100
Lead	21.7	100
Mercury	0.5	4
Cyanide	1.1	--